Human Ecology and Family Sciences

Part II

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राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

Reprint 2026-27

11137 – Human Ecology and Family Sciences Part II
Textbook for Class XI

ISBN 978-81-7450-972-7 (Part I)
978-81-7450-988-8 (Part II)

First Edition
August 2009 Bhadrapada 1931

Reprinted
April 2017, July 2019, August 2021 and March 2022

Rationalised Edition
February 2023 Phalguna 1944

PD 30T HK

© ***National Council of Educational Research and Training, 2009, 2023***

₹ 115.00

Printed on 80 GSM paper with NCERT watermark

Published at the Publication Division by the Secretary, National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi 110 016 and Printed at Shiva Printtech Pvt. Ltd., Pocket No. 1, Plot No. 59, Sector 5, Bawana Industrial Area, Delhi - 110 039.

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Foreword

The National Curriculum Framework (NCF) 2005 recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and cause a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on the steps that school principals and teachers will encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge. These aims imply considerably change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required numbers of teaching days are actually devoted to teaching.

This textbook marks NCERT's resolve to reconstruct knowledge in all areas from the perspective of the learner and the dynamic socio-economic realities of contemporary India. The National Focus Group on *Gender Issues in Education,* appointed under the auspices of NCF-2005, emphasises the urgency of incorporating women's perspective for epistemologically redefining conventionally defined subjects like home science. We hope that the present textbook will make this subject free of gender bias and capable of challenging young minds and teachers for creative study and practical work.

NCERT appreciates the hardwork done by the Textbook Development Committee and its Chief Advisors, Neerja Sharma, Lady Irwin College, University of Delhi and Shagufa Kapadia, M.S. University, Baroda, Vadodra. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development under the Chairpersonship of *Professor* Mrinal Miri and *Professor* G.P. Deshpande, for their valuable time and contribution. We are particularly grateful to the members of the sub-committee for Human Ecology and Family Sciences (HEFS), Mariamma Varghese, *former Vice-Chancellor*, SNDT Women's University, Mumbai, and S. Anandalakshmy, *former Director*, Lady Irwin College, University of Delhi for their contribution for reviewing the textbook.

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As an organisation committed to systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

Director
National Council of Educational
Research and Training

New Delhi
April 2009

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Reprint 2026-27

Rationalisation of Content in the Textbooks

In view of the COVID-19 pandemic, it is imperative to reduce content load on students. The National Education Policy 2020, also emphasises reducing the content load and providing opportunities for experiential learning with creative mindset. In this background, the NCERT has undertaken the exercise to rationalise the textbooks across all classes. Learning Outcomes already developed by the NCERT across classes have been taken into consideration in this exercise.

Contents of the textbooks have been rationalised in view of the following:

- Overlapping with similar content included in other subject areas in the same class
- Similar content included in the lower or higher class in the same subject
- Difficulty level
- Content, which is easily accessible to students without much interventions from teachers and can be learned by children through self-learning or peer-learning
- Content, which is irrelevant in the present context

This present edition, is a reformatted version after carrying out the changes given above.

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Preface

The textbook on Human Ecology and Family Sciences (HEFS), a subject so far known as 'Home Science', has been reframed keeping in view the principles of the National Curriculum Framework – 2005 of the NCERT. Conventionally, the field of Home Science encompasses five areas, namely, Food and Nutrition, Human Development and Family Studies, Fabric and Apparel, Resource Management, and Communication and Extension. All these domains have their specific content and focus that contribute to the study of the individual and the family in Indian socio-cultural context. They also provide ample scope for professional avenues of higher education and career opportunities in this applied field. Many components of the field have grown to become specialised areas and even super-specialisations. They range from professions catering to various health and service institutions/ agencies, educational organisations, industry and business houses of textiles, garments, foods, toys, teaching-learning materials, labour saving devices, ergo-nomically appropriate equipment and work stations. In Class XI the 'self and family' and the 'home' are focal points for understanding the dynamics of individual lives and social interaction. In Class XII, the emphasis will be on 'work and careers' through the life-span.

The subjects in HEFS concern themselves with enhanced human resources as well as productivity, and with better quality of life for individuals and society in general. People cannot be productive if they are physically unwell due to unhygienic personal and environmental conditions, children cannot learn if they are mal-nourished, or scarred from abuse and neglect, people cannot work if disturbed by family turmoil or resource management problems, or when preoccupied with rejection in the family or domestic violence. Conversely, human beings whose development is fostered by positive environmental surroundings, nurturing relationships, good nutrition, access to basic amenities for health, safety and sanitary living conditions, can be well-adjusted and productive citizens.

The possibilities of teaching and research careers are present at all levels of education, be it at school or college or university. To the professionals in the specialisation of Food and Nutrition, the spectrum of opportunities is wide ranging from the service sector as dietitians, healthcare consultants/counsellors to the food industry, in catering and food service management/institutional management, in accordance with the thrust of their educational inputs and acquired interests, skills and competencies. For professionals in Human Development and Family Studies, job opportunities range from being at several cadres of functionaries in social development organisations for children, adolescents, women and families, in early childhood care and education programmes, to being professionals in counselling settings at various levels and age groups. Those trained in Fabric and Apparel find their future careers in textile design, textile or fashion or garment industry, and entrepreneurship.

To the Resource Management trainees, the career choices abound between interior decoration, hospitality administration, ergonomics, to consumer

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education and services as well as entrepreneurship, event management, investment and insurance enterprising. Those who specialise in Communication and Extension can work in media related fields, or be welfare and programme officers, administrators and supervisors in field-based activities of NGOs, private and public sector organisations.

The new textbook has attempted to break away from the conventional framework of the discipline in significant ways. In the new conceptualisation the boundaries between different areas of the discipline have been dissolved. This has been done to enable students to develop a holistic understanding of life in the home and outside. A special effort has been made to communicate respect for every student's life at home and in society by making the curriculum appropriate for both boys and girls, living in different contexts, including those who are homeless. It has also been ensured that all the chapters address the significant principles of equity, equality and inclusiveness. These include gender sensitivity, respect for diversity and plurality in relation to rural-urban and tribal location, caste, class, value for both transformative traditions and modern influences, concern for society and pride in national symbols.

The practicals have an innovative and contemporary character and reflect the utilisation of new technology and applications that would strengthen critical engagement with the lived realities of people. More specifically, there is a deliberate shift to field-based experiential learning. The practicals are designed to foster critical thinking. Further, conscious effort has been made to move away from stereotyped gender roles, thus making the experiences more inclusive and meaningful for both boys and girls. It is imperative that the practicals are conducted keeping in mind the available resources.

The textbook adopts a developmental framework using the life-span approach. However, it is structured a little differently in terms of the sequence of stages in human development. The first unit begins with adolescence, as this is the stage of development being experienced by the student. Beginning with one's own stage of development would instill interest and enable identification with the physical, emotional, social and cognitive changes that the student is undergoing. Once the adolescent learner develops some understanding of the self, the second unit spans to the diverse contexts in which one functions — these include the family, school, community and society. Relationships, needs and concerns stemming from each context are dealt with in this unit. Following this are two units dealing with the study of ecological and family issues arising in childhood and adulthood respectively. This approach would help the learner understand and analyse the significance of nutrition, health and well-being, growth and development, education and communication, apparel and management during these two phases of life, thereby completing the cycle of development. Thus the textbook addresses some significant concerns and challenges of each life stage, providing reasonable suggestions and resources necessary to enhance the quality of life of self, family, community and society.

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OBJECTIVES

The HEFS textbook has been framed to enable the learners to

1. develop an understanding of the self in relation to family and society.
2. understand one's role and responsibilities as a productive individual and as a member of one's family, community and society.
3. integrate learning across diverse domains and form linkages with other academic subjects.
4. develop sensitivity and critical analysis of issues and concerns of equity and diversity.
5. appreciate the discipline of HEFS for professional careers.

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Acknowledgements

The National Council of Educational Research and Training (NCERT) acknowledges the valuable contribution of the individuals and organisations involved in the development of this textbook.

Department of Women's Studies (DWS) could not have gone ahead with this endeavour without the direction and guidance of Krishna Kumar, *former Director,* NCERT.

We also gratefully acknowledge contributions of Mariamma Varghese, *former Vice-Chancellor*, SNDT Women's University and S. Anandalakshmy, *former Director,* Lady Irwin College, University of Delhi, for their expert review, comments and suggestions for this textbook. The interesting Crossword Puzzle at the end of the textbook prepared by Nandita Chaudhary from Lady Irwin College, Delhi, is thankfully acknowledged.

Special thanks are due to the members of Syllabus Development Committee and its Chairperson, Arvind Wadhwa, *former Reader*, Department of Food and Nutrition, Lady Irwin College, University of Delhi, for their valuable contribution in the development of HEFS syllabus initiated for the first time by NCERT. Acknowledgements are also due to the team members of DWS, Neerja Rashmi, *Reader* and Mona Yadav, *Sr. Lecturer* for their support during the development of the syllabus.

NCERT is grateful to Gopal Guru, *Professor,* Centre for Political Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi, for his critical comments and insightful observations.

The contribution of Meenakshi Tomer, the *Computer Operator*, and Shumaila Fatma and Hari Darshan Lodhi, the *DTP Operator* are also duly acknowledged.

Thanks are due to the Head, faculty, and administration of DWS for their constant cooperation during the development of the textbook. Last but not the least, the efforts of the Publication Department, NCERT are also duly acknowledged.

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UNIT III

CHILDHOOD

The theme of this unit is 'Childhood'. You may wonder why did the book address the adolescent years first and childhood later. Well, it is because if you as an adolescent understand issues about yourself first, it would be easier to grasp the issues that are concerned with the stage of childhood, and later with adulthood. In this unit you will be studying about, critical concerns of children about their health, nutrition, education and clothing. As we would like children with disabilities to be an inclusive part of our society, the chapters provide us important information on their needs and ways to meet them.

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NUTRITION, HEALTH AND WELL-BEING

8

LEARNING OBJECTIVES

After completing this chapter the learner is able to–

- describe the nutritional needs of children at different stages of development.
- make suggestions for planning balanced meals for children
- discuss food habits of children.
- identify important health and nutrition related problems of children.
- describe the immunisation schedule.

8.1 INTRODUCTION

Do you remember learning about food and nutrition in Chapter 5? You also learnt about aspects of survival, growth and development of children in the previous chapter? Let us go over some important points again, briefly. Our diet is made up of the foods we eat. Nutrition is "food at work", a process by which we obtain nutrients and metabolise them for growth, repair and well-being. When we talk of nutrition we need to understand the composition of foods and to know which food provides what nutrients.

Let us now focus on nutrition, health and well-being of children.

Children grow continuously and so their nutritional needs depend on their rate of growth, body weight, and on how effectively the nutrients are utilised at each stage of their development. Since physical and mental development takes place very rapidly in children, nutritional deficiency at this stage can result in lifelong impairments and disabilities. On the other hand, adequate nutrition ensures that the children grow to their full potential. We, therefore, need to understand the art of balancing their

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food intake while enjoying variety of foods from all the food groups. It is generally believed that good nutrition is reflected in height and weight gained by children, but effectively it improves and maintains their well being in totality. Adequate nutrition contributes towards–

- functions of the organs and systems of the body.
- cognitive performance.
- body's ability to fight diseases and restore healing.
- increase in energy levels.
- develop pleasant and positive attitude.

8.2 NUTRITION, HEALTH AND WELL-BEING DURING INFANCY (BIRTH-12 MONTHS)

Infancy is marked by rapid growth; and changes especially during early infancy (birth–6 months) are phenomenal. In fact, it is known that infants require twice as many calories per kg of body weight as required by an adult doing heavy work. It is possible to fulfil this requirement through adequate nutrition. Besides energy, children should get:

DID YOU KNOW?

In infants–

- Weight–doubles in 6 months, triples in 1 year
- Length—50-55cm at birth increases to 75 cm by 1 year
- Head circumference and chest circumference both increase.

Protein - For muscular growth.

Calcium - For healthy bones.

Iron - For growth and expansion of blood volume.

Dietary requirements of infants

Infants are able to regulate their needs by consuming more milk or less milk. Their nutritional requirements are met through the composition of breast milk and contributions from complementary foods given to them.

The recommended nutrients are computed on the basis of composition of mother's milk. An average secretion of 850 ml of breast milk of a well-nourished mother should provide all the nutrients for the first 4–6 months. The baby thrives well if the mother is well nourished. She must, therefore, eat a diet rich in protein, calcium and iron and consume adequate quantities of fluids like milk, soups, fruit juices, and even water to avoid malnutrition.

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Table 1: Recommended Dietary Allowances for Infants		
Recommended by ICMR*		
Nutrient	Birth to 6 Months	6-12 Months
Energy (Kcal.)	108 / kg body weight	98 / kg body weight
Protein (gm)	2.05 / kg body weight	1.65 / kg body weight
Calcium (mg)	500	500
Vitamin A Retinol (µg) Or Beta Carotene(µg)	 350 1200	 350 1200
Thiamine (µg)	55 / kg body weight	50 / kg body weight
Niacin (µg)	710 / kg body weight	650 / kg body weight
Riboflavin (µg)	65 / kg body weight	60 / kg body weight
Pyridoxine (µg)	0.1	0.4
Ascorbic Acid (µg)	25	25
Folic Acid (µg)	25	25
Vitamin B12 (µg)	0.2	0.2

** Indian Council of Medical Research (ICMR),2010*

Breast feeding

Mother's milk is nature's gift to the newborn baby. It is enriched with all the required nutrients which are easily absorbed. WHO recommends exclusive breast feeding for six months. During breast feeding even water is not required. Babies should be put on breast milk soon after birth. During the first 2–3 days a yellow coloured fluid known as **colostrum** is produced. Babies must be fed on it as it is very rich in antibodies and protects a child from infections.

Benefits of breast feeding

- It is nutritionally tailor-made for meeting the infant's nutritional needs.
- It is enriched with all the nutrients in required proportion and form (e.g,. the fat present is emulsified). Its low amount of protein reduces pressure on the kidneys and Vitamin C is also not destroyed.
- It is a simple, hygienic and convenient method of feeding both for the mother and the child. Milk is available at all times and at the right temperature.

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- It protects babies from gastro-intestinal, chest, and urinary infections due to the presence of antibodies in it giving it natural immunity, and it is free from allergens.
- It gives protection to mothers against breast and ovarian cancers, and also from developing weak bones.
- It is very conducive for a healthy, happy emotional relationship between the mother and the child.

Babies know when and how much they want and so the "best clock is baby's hunger", though efforts must be made towards regularising the feeding intervals, after a baby reaches one month of age.

Feeding the low birth weight infant

You may know that some children are born low in body weight. A baby weighing less than 2.5 kgs at birth is considered as low birth weight. The problems facing such babies are that they have poor sucking and swallowing reflexes. Their absorption capacity is also very low because of the small size of their stomachs and intestines, but they have a relatively high calorie requirement. Breast milk produced by their mothers has all the essential amino acids, calories, fat and sodium content. It meets all their requirements. Anti-microbial property of their mother's milk protects them from infections.

So, undoubtedly, mother's milk is the best food for low birth weight babies. Simultaneously, they require vitamins, calcium, phosphorus, and iron to promote steady growth. Dietary supplements should be considered only if the baby does not gain weight satisfactorily.

Complementary foods

Complementary feeding is the process of gradually introducing other foods along with breast milk. Foods that are introduced are thus called complementary foods. These can be introduced by 6 months of age. It is important that in the process of complementary feeding good hygienic conditions must be maintained when using feeding bottles and utensils to avoid infection to the baby.

In order to ensure the fulfilment of nutritional needs of infants,

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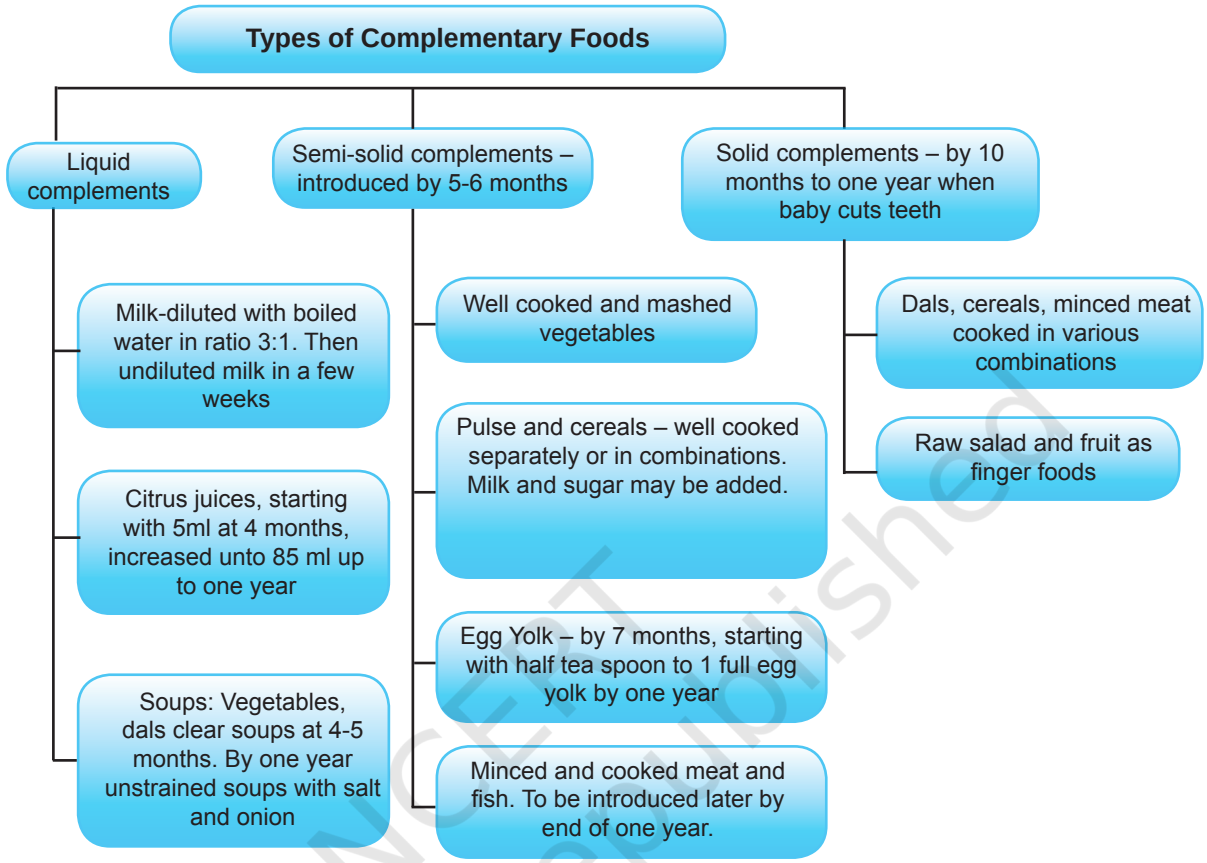

TABLE 2 : TYPES OF COMPLEMENTARY FOODS

complementary foods should be calorie-dense and should provide at least 10 per cent of energy as proteins.

Some low cost complementary foods

- Indian multipurpose flour – low fat groundnut flour and bengal gram (75:25)
- Malt food – cereal malt, low fat groundnut flour and bengal gram (4:4:2)
- Balahar – whole wheat, groundnut and bengal gram flours (7:2:2)
- Win food – pearl millet, green gram dal, groundnut and jaggery (5:2:2:2)
- Poshak – cereal (wheat/maize/rice/jowar) pulse (*chana*/green gram), groundnut and jaggery (4:2:1:2)
- Amutham – rice, ragi, bengal gram and sesame, groundnut flours and jaggery
- (1.5:1.5:1.5:2.5:2.5)
- Amritham – wheat, bengal gram, soya and groundnut flours and beet sugar (4:2:1:1:2)

All these foods are prepared from locally available cereals which are roasted and mixed in relevant proportions as shown, seasoned and fortified with vitamins and calcium. They are very nutritious and can be easily prepared at home.

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Guidelines for complementary feeding

- Only one food should be introduced at a time.
- Small quantities should be fed in the beginning which can be gradually increased.
- Do not force if the child dislikes any food. Try something else and re-introduce later.
- Spicy and fried foods should be avoided for small babies.
- All types of food should be encouraged without showing personal dislikes.
- Variety in foods is very important to make new foods acceptable.

ACTIVITY 1

Ask your parent/grandparent/aunt about the traditional complementary foods of your region. Do you think these foods are nutritious? Give reasons for your answers.

Immunisation

Good health and well-being are not entirely dependent on good nutrition. We all are aware of the role of immunisation in protecting children from various diseases.

You may be interested in knowing how immunisation protects children from diseases. A vaccine that contains an inactive form of a bacterium/virus/toxin made by the germ is injected in the child. Being inactive it does not cause infections but induces white blood cells to produce antibodies. These antibodies then kill the germs when they attack the child's system.

Table 3: National Immunisation Schedule (Recommended by ICMR)

Age of the child	Vaccine
Birth	BCG, OPV, HEP B
6 weeks	OPV, PENTA (DPT, HEP B, HiB)
10 weeks	OPV, PENTA (DPT, HEP B, HiB)
14 weeks	OPV, PENTA (DPT, HEP B, HiB)
9 months	MR (Measles, Rubella)

1. BCG-Bacillus Calmette-Guerin (anti TB)
2. OPV-Oral Polio Vaccine
3. DPT-Diphtheria, Pertusis and Tetanus
4. HEP B- Hepatitis B
5. Hi B- Haemophilus influenza type b bacteria

Source: *National Immunisation Schedule, Government of India*

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Common health and nutrition problems in infants and young children

We have learnt in Chapter X in Part I how malnutrition and infections are interrelated. In fact malnutrition is a national problem. It is a consequence of several factors such as illiteracy, poverty, ignorance about nutritional needs of children, and poor access to health care, especially in rural and tribal areas.

Children begin to be malnourished when breast milk is no longer available in adequate amounts and they continue to remain so till they can make full use of the family diet. During this period incidence of diarrhoea is very common in infants. It results in depletion of water and electrolytes from the body and this condition is a major cause of infant mortality. Research evidence favours the view that nutritional factors play a role in causation of tuberculosis particularly in populations subjected to food shortage. Primary herpes simplex is another infectious disease which affects children if they are suffering from malnutrition at the same time.

Nutritional deficiency diseases may set in at this stage if the infant is not exclusively breast fed and when complementary foods do not meet the nutrient needs of infants. Let us list the important deficiency diseases that may occur in childhood precisely

- Protein Energy Malnutrition (PEM): leads to growth retardation and infections leading to diarrhoea and dehydration
- Anemia : caused due to iron deficiency
- Nutritional blindness : results due to vitamin A deficiency
- Rickets and osteopenia are bone-related : due to shortage of vitamin D and calcium
- Goitre (enlargement of the thyroid gland) : due to deficiency of Iodine

Much of the major effects of nutrition on communicable diseases have already been focussed in the previous chapter. The six dreaded communicable diseases namely polio, diphtheria, tuberculosis, pertusis, measles and tetanus compound the incidence of mortality and morbidity, more so in developing countries like India. The low age of attack is one more factor responsible for high fatality. The problem worsens when infection and malnutrition co-exist in the same infant. Immunisation given at different stages of the first year of life gives life-long immunity to children against communicable diseases.

In rural and tribal areas, factors such as poor access to health centres, climatic conditions, certain local customs, and use of untested traditional methods of treatment increase the child's susceptibility to infectious diseases. There is need to inform people about the health hazards of contaminated food, poor environmental sanitation and inadequate personal hygiene and their role in causing communicable diseases.

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CHECK YOUR PROGRESS

- What do DPT, OPV and BCG vaccines stand for?
- How does diarrhoea result in dehydration?
- Why is the mother's health and nutrition important to avoid deficiency diseases in infants?
- Classify complementary foods.

8.3 NUTRITION, HEALTH AND WELL-BEING OF PRESCHOOL CHILDREN (1-6 YEARS)

Preschoolers, as you all know are very energetic, active and spirited. The rapid growth of infancy is comparatively slowed down now. But the child is very active. There continues to be physical, mental and psychological development.

Preschoolers are still developing their eating habits and working on chewing and swallowing skills. It is, therefore, an excellent time to help the child become familiar with eating healthy meals and snacks. Healthy eating habits formed during these years are likely to be reflected in their food behaviour later on.

Nutritional needs of preschool children

Basic nutritional needs of preschoolers are similar to the nutritional needs of other members of the family. The amounts needed differ because of age, height, current weight and health status, and also their activity level. There is also an increased demand for energy to support growth and development.

Table 4: Recommended dietary allowances for preschool children (Recommended by ICMR), 2010

Nutrient	Age in years: 1–3 years	Age in years: 4–6 years
Energy(Kcal)	1240	1690
Protein(g)	22	30
Fat(g)	25	25
Calcium(mg)	400	400
Iron(mg)	12	18
Vitamin: Retinol(µg)	400	400
Or Beta-carotene(µg)	1600	1600
Thiamine (mg)	0.6	0.9
Riboflavin (mg)	0.7	0.1
Niacin (mg)	8	11
Vitamin C (mg)	40	40
Pyridoxine (mg)	0.9	0.9
Folic Acid (µg)	30	40
Vitamin B-12 (µg)	0.2-1	0.2-1

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It is important to note here that because of basal losses and additional requirements, needs may vary a little from child to child.

Guidelines for healthy eating for preschoolers

We know that like many other habits the child should also develop good food habits early in life. In order to teach them that "healthy eating is part of healthy life style" one can follow the suggestions given below–

- Mealtime can be a family time. Eating together as a family in a pleasant and enjoyable atmosphere helps children. Children learn by imitating the eating behaviour of other members of the family.
- Variety is one of the important aspects and hence offering a choice of foods in child size portions is important. The child should be taught to finish everything on the plate. At the same time give them enough time to finish.
- There should be regularity in mealtime and snack time so the child gets properly hungry.
- Put new items on the menu along with the child's preferred foods. A balance between hard, soft and colourful foods should be maintained to stimulate interest.
- Menus must include dishes which are easy to handle and eat, like in the form of finger foods such as small sandwiches, *chapatti* rolls, small size *samosas*/*idlis*, whole fruit or hard boiled eggs.
- Serve meals at one place and not when the child is walking around. You may want to select suitable seating arrangements for the physical comfort of the child.
- Above all, have the child rest before meals. A tired child may not be interested in eating.
- It is suggested that never ever bribe or punish the child to eat and finish certain foods. It is injurious to building healthy food habits.

Planning balanced meals for preschool children

An active preschool child's energy needs rival those of some grown up women. So we need not track their calorie consumption. But given the velocity of growth and activity, if the child is denied of nutritious balanced meals, she/he may not achieve her/his full genetic potential for adult height. It may affect the health also. Children suffer from Protein-Energy Malnutrition (PEM), xerophthalmia (vitamin A deficiency) and anaemia if protein, vitamin A and iron respectively are lacking in their meals. Universal use of iodised salt is a simple and cheap method of preventing Iodine Deficiency Disorders.

The diet of a preschool child should emphasise three aspects–

– **Variety** in textures, tastes, smells and colours, to broaden a child's nutritional intake and eating experience,

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– **Balance** of complex carbohydrates, lean proteins and essential fats,
– **Moderation** while indulging in sweets, ice creams, fast foods rich in fats and refined flours.

Now do you remember the five food groups you learnt in Chapter III in part I? The five food groups suggested by ICMR permit us to plan balanced meals according to our recommended dietary allowances. While planning daily diets foods must be chosen from all the food groups. In order to make planning more convenient, ICMR has suggested diets for different age groups. We could refer to Table 5 below for the quantities of various food groups to be included in a balanced diet for preschool children.

Table 5: Balanced Diet for Preschool Children (Recommended by ICMR), 2010

S.No.	Food Groups	Quantity (gm)	
		1–3 years	4–6 years
1.	Cereals and Millets	60	120
2.	Pulses	30	30
3.	Milk (ml)	500	500
4.	Fruits and vegetables		
	Roots and tubers	50	100
	Green leafy vegetables	50	50
	Other vegetables	50	100
	Fruits	100	100
5.	Sugar	15	25
	Fats/Oils (visible)	20	25

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Now we should be able to plan three meals and two snacks for a preschool child. You may be wondering why snacks. Because it is hard for the preschoolers to eat enough in three meals, healthy snacks in between meals provide the calories and nutrients they need. Besides snack time is a good time to introduce new foods. Snacks also go well in school tiffin.

Let us look at a situation and analyse how we can plan snacks and meals for a preschooler.

The parents of a six years old child can plan and prepare the following meals for a day–

Breakfast: Wheat porridge cooked in milk/bread or *roti*, egg and seasonal fruit.

School tiffin: Sandwich with vegetable filling and a healthy drink.

Lunch: Vegetable/*paratha*/*roti*, rice, curd, boiled *channa* and salad.

Evening snack: Milk, biscuit/peanuts and fruit.

Dinner: *Chapati*/rice, dal/chicken, cooked seasonal vegetable and salad.

Now how do you rate the parent's attempt to plan and serve balanced *meals* to the child?

Snacks served to the children in the different regions include items such as *murukku, laddoos, upma, mathi, chana-chur* which are traditional preparations and are nutritious. The high activity levels of children increases the energy needs and hence such snacks may be useful in providing enough calories to meet their needs.

Some examples of low cost snacks

— Equal amounts of *soya bean dal* and sunflower seeds are ground, mixed and fermented together.
— Sweet *chikki* (like traditional peanut *chikki*) has great acceptability in rural and semi-urban areas of India.
— Indigenous foods such as flours of rice, cow pea, horse grain and amaranths, jaggery are mixed in equal amounts with ground nut oil to prepare various snacks.
— *Sundal*, *Payasam*, *Dhokla* and *Upma* are popular snacks.
— Vegetable soup prepared from seasonal and locally available vegetables. Even leftover vegetables, dals and cereals can be added.
— Spiced baked potatoes.
— *Chiwrha (poha)* prepared from rice, wheat or maize flours or other products and stuffed with seasonal vegetables can be served with sauce.

ACTIVITY 2

You are asked to take care of a four-year-old child for a day from 10 am to 6 pm. Keeping a balanced diet in mind suggest what you will serve to her/him for meals and snacks.

Feeding children with special needs

Feeding children with special needs often poses challenges at mealtimes. While helping them with feeding and other nutritional issues, three main aspects have to be taken into account–

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Observations: Closely observe the child's behaviour and progress at mealtimes. Observe their abilities to handle food, food preferences, allergies and any specific condition. Promote and help them develop the skill they need to get adequate nutrition and experience pleasant mealtimes.

Developing eating skills: Children with disability are likely to require more time to eat. They often struggle to feed themselves and make bigger messes. Focus on positive reinforcement to keep them motivated and prevent resistance.

Make sure the child is seated comfortably and avoid feeding her/him if she/he can do it himself. Help them develop self-feeding skills.

Allow the child to eat increasingly challenging textures as she/he progresses. Adaptive equipment may be used if needed.

Respect the child's food preferences, eating space and whether or not she/he chooses to eat. Try and set regular feeding timings.

Special diets: Some of the children may require modifications in their diets and mealtime routine depending on their ability. Spastic children may struggle with different food textures. Thin liquids may be thickened and dry or lumpy foods can be chopped or softened to make it easier for the child to swallow. A feeding tube may be used if required.

Some children with disability have a tendency to be overweight making eating difficult. Children with autism have an altered sense of taste or smell affecting their acceptance of food. Depending on their choices extra fat, limited liquids, special formula or other dietary changes may be needed.

All foods to which a child with special needs is allergic should immediately be removed from her/his diet as it may cause damage.

Immunisation

Some more vaccinations in combating communicable diseases are due now. Refer to Table 6 below and note that the preschool child is now due for measles, mumps and rubella (MMR) and Typhoid Vaccines besides booster doses of DPT and OPV.

Table 6: Immunisation schedule

Age of Child	Vaccine
15–18 months	MMR (for measles, mumps and rubella)
16 months–2 years	DPT, OPV-booster doses
2 years	Typhoid Vaccine
5 years	DT
10 years and 16 years	Tetanus Toxoid (TT)
18,24,30,36 months	**Vitamin A (drops)**

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CHECK YOUR PROGRESS

1. How many Kcal of energy is required by a four-year-old child?
2. What is the importance of iodine, iron, calcium and protein in the diet of preschool children?
3. Which are the three aspects to be taken into account while planning diets for preschoolers?
4. Why are snacks important in a preschooler's diet?
5. What is MMR vaccine for?

8.4 HEALTH, NUTRITION AND WELL-BEING OF SCHOOL-AGE CHILDREN (7-12 YEARS)

School age children too are extremely active physically. With the incidence of communicable diseases out of the way, the child is now quite strong. You may notice that the growth pattern is rather slow now. Instead body changes occur gradually, especially from 9 to 10 years onwards, when boys and girls show different growth patterns.

Nutritional requirement of school children

Though it is a latent period of growth there are several activities to pack in the child's day now. Retaining her/his energy is therefore very crucial. Nutritional requirements are the same for both boys and girls upto the age of 9 years after which there is a change in some of the nutrient requirement for boys and girls. You may recall that the energy requirements for girls remain almost the same throughout but they need increased amounts of protein, iron and calcium to help bone growth and preparation for menarche. Boys of 10-12 years need enough calories to maintain adequate reserves for the spurt in their growth during adolescence.

Table 7: Recommended Dietary Allowances of School Age Children (7–12 Years)

(Recommended by ICMR)

Nutrients	Age (in years)		
	7-9	10-12	
		Boys	Girls
Energy (k. cal)	1690	2190	2010
Protein (g.)	29.5	39.9	40.4
Fat (g.)	30	35	35
Calcium (mg.)	600	800	800
Iron (mg)	16	21	27
Vitamin A Retinol (µg) OR B Carotene (µg)	 600 4800	 600 4800	 600 4800
Thiamine (mg)	1.0	1.1	1.0
Riboflavin (mg)	1.2	1.3	1.2
Pyridoxine (mg)	1.6	1.6	1.6
Folic acid (µg)	120	140	140
Ascorbic acid (mg)	40	40	40
Vitamin B12 (mg)	0.2-1	0.2-1	0.2-1
Niacin (mg)	13	15	13

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Planning diets for school-age children

Following all aspects and guidelines of diet planning for preschool children, it may appear that by school age the children establish a particular pattern of food intake. To an extent you are right but planning balanced meals for school children may differ in other aspects. Let us discuss these briefly.

Aim for variety: We know that no single food can provide all the nutrients in the amount the child needs every day. The most consistent nutrition message therefore is to eat a variety of foods. Variety also increases the likelihood of accepting new foods.

Ensure good nutrition: We know that children at this age need more protein, calcium, iron and iodine. They must be encouraged to eat vegetables, fruits, whole grains. Fruits and vegetables improve the macronutrient density in their diets and whole grains reduce the risk of diseases like cardiovascular and diabetes. Iodised salt, as mentioned earlier, is the easiest way to avoid iodine deficiency.

Limit intake of saturated fat, salt and sugar: You know that the growth of school children has now slowed down. Maintain fat calories to 20 per cent of total calories. Diets rich in fats and sugars increase the risk of obesity and its related problems. Foods with added sugars are also a cause of dental caries. A high sodium intake may increase blood pressure leading to major risk factors of stroke, kidney and coronary diseases. Do you know that young children are frequently falling prey to diabetes and high blood pressure now-a-days?

Ensure eating breakfast: Breakfast is a special meal. It should contain more of protein and energy. After the long night's fasting the child should never be allowed to skip breakfast. Skipping breakfast will negatively affect her/his physical and mental performance, and the loss of calories and nutrients cannot be made up later in the day.

Involve children in meal planning: As children grow older they can be involved in planning their meals. It will make healthy eating interesting for them. Amrita has an 8-year-old son and 10-year-old daughter. She talks to them about making choices and planning balanced meals. She even takes them along to buy ingredients, at the same time she teaches them what to check while buying raw food material. Don't you think she makes the task of serving them nutritious meals attractive? Besides, encourage children in age- appropriate tasks of cooking their meals, and serving. They often get excited and develop healthy and positive concepts of food.

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Besides following the guidelines for planning balanced diets you may refer to Table 8 for the quantities of foods to be consumed by school going children as recommended by ICMR:

Table 8: Balanced Diet for School Going Children (ICMR), 2010

S.No.	Food Groups	Quantities (g)		
		7–9 years	10–12 years	
			Boys	Girls
1.	Cereals and Millets	180	300	240
2.	Pulses and Legumes	60	60	60
3.	Milk and products	500	500	500
4.	Fruits and vegetables			
	Roots and Tubers	100	100	100
	Green Leafy Vegetables	100	100	100
	Other Vegetables	200	200	200
	Fruits	100	100	100
5.	Sugars	20	30	30
	Fats	30	35	35

Amrita and Ankit very particular about serving three balanced meals and two healthy snacks to their **school age children**. Let us view the diet plan prepared by them for their children for today. You can use it as cross reference.

— **Breakfast:** Milk and cornflakes, *Rawa upma* and an apple or any seasonal fruit
— **School Tiffin:** Grilled sandwich with egg filling for their daughter but *paneer* filling for the son (who is allergic to egg) and a seasonal fruit.
— **Lunch:** Vegetable *pulao*, tomato rings and cucumber sticks for salad and butter milk.
— **Evening Snack:** Boiled potato and *moong* sprout *chaat*.
— **Dinner:** Bengal gram *dal* or chicken curry, okra and onion vegetable, *chapati* and raw salad.

In rural areas the breakfast may consist of items such as *upma* (with banana), *pootu* (with *chana* curry or banana), *idli* or *dosa* (with *sambar*/ coconut chutney) or *appams* (with potato/chicken curry) in the south or *paranthas* with buttermilk or *poori* with potato preparation in the north. Snacks may include items prepared from rice flour with a filling of jackfruit and a paste of nuts or rice flour extruded from a mould in thin strands – both items being steamed. *Murukku* is another item that can be served as a snack for older children. In tribal areas emphasis is placed on foods gathered from the forest such as nuts, berries and other fruits/flowers obtained from trees. Lunch and dinner can consist of *chapattis* and rice, a pulse/*dal* preparation and a vegetable preparation.

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ACTIVITY 3

Suppose you have a 9-year-old sister and an 11-year-old brother, and both are vegetarian. Suggest what you will serve them for breakfast and dinner.

Factors that influence diet intake of preschool-age and school-age children

Despite all the planning and preparation of the child's meals, chances are that the younger child is missing out on some vital nutrients. Do you know why? Because children are in the process of developing their eating habits and many factors are influencing these habits. These are discussed below.

Family environment: Put simply, families that use positive parenting practices encourage total well-being of children. We generally observe that with or without conscious effort the family guides and shapes the food preferences and establishes the food patterns of their school children. Parents should therefore acquire proper nutritional knowledge and incorporate it into planning diets for their children. Eating together in a comfortable and happy atmosphere is conducive to good eating habits and nutrient intake.

Media: TV commercials and their favourite film stars endorsing the products have very strong influence. More exposure, more independence and above all more understanding of the catchy slogans tempts children of this age. Attracted by the messages conveyed by commercials they insist on foods which are low in fibre, and high in sugar, fat and sodium. Similarly, an attractive display of foods with harmful additives during festivities influences their between meals snacking which in turn lessens their appetite for proper meals. A conducive family environment would help to combat this issue.

Peers: As the child enters school, there is a change of dependence from parental standards to those set by the peer group. So food intake may differ from what is followed at home due to peer influence. Adequacy in terms of nutrients does not depend on what food is available to children of this age but on what their friends eat. Children usually eat well in the company of friends. The tiffin given for school is often finished. When they eat along with their peers, they are willing to eat new foods which they otherwise refuse. In order to promote a positive attitude towards good food habits in preschoolers it is best to have group settings.

Socio-cultural Influences: Every region has its typical foods and flavours. The family usually serves the same food to young children that

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adults eat. Eating with the family encourages children to like foods typical of their own region, and also of other regions. As an example, children in the north of India enjoy eating southern dishes such as *idlis* and *dosas* with relish, while children in southern states like *parathas* and *rajma*-rice of the north.

Erratic Appetite: You may notice that the child may eat one meal well while refusing the next altogether. This should not be worrying because these are temporary moods and disappear if not reinforced by bribes, punishments or rigid rules.

Healthy habits

Now you can understand that **good health is a blend of physical and emotional well-being.** Besides adequacy of food in terms of nutrients, school children need to develop some **healthy habits**–

- **Establish sensible eating habits:** Children at this age sometimes turn into munching machines glued to the TV and having no physical activity. Radha has an innovative solution for a situation like this. She prepares a bowl of fruit and vegetable salad with lots of lettuce leaves, some nuts/sprouts/boiled chick peas/steamed beans or carrots/ tofu or paneer chunks, adds some interesting dressing and serves this in plenty. She keeps changing the combinations giving them fancy names.

- **Encourage physical activity:** Healthy eating and physical activity go hand in hand with moderate activity of 45–60 minutes promotes good health. Limit television watching and encourage sports. Children should be encouraged to take part in extracurricular activities of school and community. Parents have to be a model on active lifestyle and healthy eating patterns.

- **Ensure food safety:** Children should be trained to eat under hygienic conditions. Food consumed should be clean and safe before eating. They must wash their hands, fruits, and vegetables before eating. My neighbours Kanta involves her children in washing, cutting, mixing and cooking (under her supervision). It has become their habit to prepare and eat food under hygienic conditions.

- **Ensure control over quantity intake:** Children of 9–12 years can gauge how hungry they are. We must never force them for more if they do not want to eat. Doing so will override their feeling of fullness. Food should not be used as a way of showing love. Besides, skipping a meal is no problem as long as the child is healthy. But this should not be made a habit.

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Health and nutrition issues of school age children

With the concerted efforts of parents in following immunisation schedules and healthy nutrition pattern the child by this time is strong enough to fight occasional colds and cough.

You may know that **obesity** is a growing health risk among children now. This is largely due to a diet rich in fatty foods high in salt, low in fiber and beverages with added sugar. Non-active lifestyle further complements the situation. The problem is more among children from higher socio-economic sections of our society.

Type II diabetes and hypertension, earlier rare among children, are becoming more common among youngsters nowadays. This is attributed to the rise in childhood obesity.

Under nutrition still remains a serious health hazard among lower socio-economic groups. Children from poor families go to school on an empty stomach. The result is that these malnourished children are not likely to perform well in school. Instead they are at a greater risk of morbidity and mortality.

The mid-day meal scheme (MDMS) implemented by our government provides free lunch to school children from Classes I–VIII. The scheme has shown very good results. Teachers report that classroom performance and attention spans of children have improved significantly. Not only has this school enrolment increased but drop-out rate has declined too. MDMS has been shown to reduce the gender gap in education by boosting female attendance.

In our country we face the dual problem of undernutrition as well as over-nutrition. So if we continue to spread the benefits of healthy nutrition it will have an impact in the long run. Besides "School Health" programmes providing free health checks and treatment will increase overall well-being of children.

The overall development of children requires concerned care and quality education. This is what will be discussed in the next chapter.

Key terms and their meaning

Complementary feeding: Inclusion of other foods to the infant's diet in addition to breast milk

Malnutrition: Refers to both undernutrition and overnutrition. In undernutrition the body suffers due to lack of nutrients and in overnutrition the body suffers due to excess of nutrients.

Obesity: Deposit of excess fat in the body leading to body weight rising above normal levels. This is caused by intake of more calories than can be spent on body metabolism and physical activity.

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Hypertension: High blood pressure
Diabetes: Deficiency of insulin in the body leading to rise in blood glucose and presence of glucose in the urine.

Review Questions

1. Why should we limit the intake of saturated fats, excess sugars and salt in a school child's diet?
2. How does involving children in meal planning help in healthy eating?
3. "Childhood obesity is on the increase." Give reasons.
4. How has the Mid-day Meal Scheme" boosted children's health as well as school performance?

Suggested activities

(a) You are visiting your native village or any other village where you find that children are malnourished and victims of many resulting diseases. If you were asked to talk to the parents what would you say about–
   (i) role of adequate nutrition in protecting children from diseases?
   (ii) planning balanced meals for young children?
   (iii) communicable diseases and importance of immunisation?
   (iv) immunisation schedule during preschool years?

(b) Your neighbour's two-month-old child suffers from diarrhoea repeatedly. Explain about–
   - Nutritional needs of infants
   - Importance of exclusive breast feeding for the baby's health and development
   - Low cost complementary foods and their preparation from locally available food stuffs

(c) Enlist and explain briefly the steps involved in developing healthy food habits in school going children.

(d) Explain the aspects you will take into account in helping children with special needs with nutritional issues–
   (i) Observation
   (ii) Physical activity
   (iii) Developing eating skills
   (iv) Variety
   (v) Special diets

(e) How do family, media and peers influence the food intake of children?

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9

Our Apparel

Learning Objectives

After completing this chapter the learner is able to —

- discuss the clothing functions and the factors influencing selection of clothes.
- identify general clothing needs of the children.
- recognise the characteristic features and clothing requirements of children from different age groups.
- discuss the clothing needs of children with special needs.

When you meet people for the first time what impacts you the most? Their clothing, or face or their personality or all of these? Our posture, walk, smile or frown and other forms of body language contribute to the impression we create. Actually of all these aspects clothing creates the first impression. We recognise that good appearance is important. In order to appreciate the true importance of dress or clothing we need to discover how we feel about the clothes we wear.

9.1 Clothing Functions and the Selection of Clothes

Look at the clothes you are wearing today and think about why you are wearing them. May be it was the weather that determined what you chose or the kind of activity in the school that you were to perform or may be the function you were to attend with your family or friends, or for no particular reason.

We all wear clothing and we wear different types of clothing. Let us begin to understand why we select the clothing we wear. At the same

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time let us gain some insight into other people's reasons for their clothing choices.

Modesty

Probably the most obvious reason for wearing clothes is simply that in our society, people do not go around without them; we wear clothing for modesty. You probably know that young children do not feel embarrassed going about without any clothing. The need to have their bodies covered is something that they are taught.

Ideas about modesty are shaped by the society in which we live. What is considered modest in one society might not be considered as modest in another. For example in some communities women not covering heads may be considered as a sign of immodesty, whereas, in other communities women not covering their legs is thought to be immodest.

Protection

We wear clothing to protect ourselves from the environment – from harsh weather conditions, dirt and pollution. We change our clothing according to the different seasons. In hot summer months we wear light weight cotton clothes and may even cover our heads to protect ourselves from the scorching sun, whereas in winter months we cover ourselves in layers of woollen clothing for protection.

Clothing can also protect us from physical harm. Fire fighters wear special clothing for protection from fire, smoke and water. Many sports activities such as football, hockey and cricket require clothing that is specially designed to protect the players from injury. You must have noticed the arm guards, leg guards, wrist bands that these players wear along with their normal dress for special protection.

ACTIVITY 1

Can you identify the clothing that is needed in the rainy season? What type of fabrics, garments and accessories are needed in that weather? Make a list and discuss with your friends.

Status and prestige

Clothes can also be a sign of status. It used to be true that you could identify people's social and economic status by their clothing. You may have seen in certain historical films that the king's and courtesan's clothing are quite different from the common people's clothing. Everybody's sense of identity

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includes a feeling of social status or prestige, and the manner of dress is one way by which this can be accomplished. In India on festivals and important family events people wear clothes that may reflect their social status.

However, as more and more stylish clothing become available at reasonable prices, today many more young people can afford to buy them. Thus, as similar kinds of clothing (T-shirt, jeans, salwar-kurta) become available for all ages and economic levels, these also serve as social class levellers, a step towards social equity in a democratic society.

Adornment

What about wearing clothes just because you want to look attractive? Yes, we wear good clothes to enhance our appearance. The need to decorate and adorn the body seems to be one of the more universal drives of men and women and can be found to some degree in all societies. Ear piercing, nail polishing, tattooing, hair braiding and knotting are forms of body decoration still used. The desirability of each type of adornment is determined by the society.

There is a vast range of fabrics available in the market, a large number of which are used for clothing and apparel. In an earlier chapter (Chapter 7) you learnt about these fabrics in terms of their fibre content, yarn and fabric types and the finishes applied during production. Thus, you can relate the fabric characteristics with their suitability for diverse usages and care requirements. Selection of the type of clothing and apparel not only takes into consideration the fabric characteristics but also the right style of garment and its accessory details. Having earlier discussed the reasons for wearing clothes, let us look at the clothing needs and selection of clothing for different age groups.

9.2 Factors Affecting Selection of Clothing in India

Assessment of clothing needs and the final decision in the selection is dependent on the geographical features, climate and seasonal features of the area where they have to be used. It is also affected by easy availability, cultural influences and even more strongly the family traditions. In general, the factors that affect selection of clothing can be summarised as follows–

Age

Age is an important factor to be considered at all stages of life. It becomes more important while selecting clothes and apparel for children, since it is

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parents or elders of the family who are taking the decision regarding their clothes. It is important to remember that children, specially infants and toddlers, are not dolls to be dressed up and decorated for the satisfaction of adults. Their physical growth, motor development, association with people and things around them and activities they indulge in, all have to be taken into consideration from the point of view of comfort and safety.

As children grow, their association and interaction with people outside their immediate family increases. They become aware of clothes that other people wear and how others view their clothes. Conformity to peers begins to become important in middle childhood and increases in importance with age. Clothes and apparel play an important role in helping the growing child feel a sense of belonging and acceptance. As children grow, their clothing changes and clothing for girls and boys becomes different. Approaching adolescence, the rapid physical growth brings about even further gender differentiation in clothing. The adolescents also start recognising cultural and societal norms as well as contemporary trends which influence their selection of clothes. They are often convinced that their popularity and relationships in a group are dependent on appearance, which in turn is due to the "right clothes."

Climate and season

In the previous section you read that protection from environment and weather is one of the main reasons for wearing clothes. Hence the selection of clothing for children has to be suited to the climate. Clothing requirements for cold climate or season would be very different from warm or temperate climate and even for areas with heavy rains or high humidity. When some types of clothes and fabrics are suitable only for 3–4 months in a year, their cost and quantity has to be considered carefully. This is more important for growing children because they would have outgrown them by the next season.

Occasion

Selection of clothes also depends a lot on the occasion and time of the day. There are also unwritten rules and traditions for clothing for each occasion. Most schools have dress uniforms and rules regarding not wearing accessories and ornaments. In schools, where it is not compulsory to wear a uniform, very formal, very dressy or very sporty clothes can cause disciplinary problems for children. They may become objects of ridicule by their peers or may be deterred from joining group activities whole heartedly.

Social get-togethers and parties are the occasions when children like to use 'nice' apparel to highlight their individuality. At family functions

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such as a wedding even children may have to follow the traditional norms and wear something suitable. In most communities, rites and ceremonies associated with the passage of life continue to follow traditional, some time modified, norms. The clothing selection is reflected not only in the style of dress, but also in the choice of fabric type and texture, colour and accessories. Concepts of clothing in terms of modesty and protection vary with occasion, activity and time of the day. Wearing the right thing at the right time is most important.

Fashion

The term 'fashion' is identified with a style which has contemporary appeal for the masses. With children's constant exposure to TV, even they become quite fashion conscious. Fashion may be inspired by important personalities, social or political leaders, film stars or even important national events. These can be reflected in apparel in terms of fabric types, colour and design of the material, shape or cut of the garment or simply the accessories (like scarves, bags, badges, belts, etc.) that go with it. Certain fashions that highly exaggerate some features of dress or may affect only part of the society, or a specific area are very short lived. These are known as 'fads'. Children and adolescents are quite likely to be taken up by fads.

Income

The amount of money available also affects the selection of clothing. This is reflected not only in the initial cost while purchasing it, but also in its use for varied purposes, durability, and care and maintenance requirements. The number of children in a family, their age gaps and gender may also affect the final choice. Families of high-income group often have greater variety in clothing, specially with reference to special occasions. In families with modest or low income, the clothes of older siblings are recycled and worn by younger ones to economise on the expenditure on clothes.

One reason why schools prescribe a uniform dress for children is to de-emphasise the socio-economic differences among students.

9.3 Understanding Children's Basic Clothing Needs

As children grow, they like to identify with their peers and or adults whom they admire. One way of doing that is to dress like them. This is an emotional experience for them. Children's clothes must be suitable for their different activities, and must give them freedom to play, something that is so essential for their physical growth. The clothing needs of children,

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from infancy to adolescence, are discussed below in detail.

Comfort

The most important requirement for children is comfort. They need to roll, crawl, squat, climb, run and jump without being hindered by clothes. They need to play without fear of getting their clothes dirty. Tight clothes are avoided as they restrict activity and even interfere with natural blood circulation. Similarly elastic bindings should not be so tight as to cause pain.

Heavy and bulky clothes are difficult to handle and tiring for children. Select lightweight clothes that are made of acrylic and nylon fibres, especially for winter apparel, to keep warm. Children need to bend and stoop often, so sufficient ease is essential in the crotch to allow for comfortable movement. Clothes that hang from shoulders are generally more comfortable than those hanging from waistline. Necklines have to be wide enough so that there is no strain across the throat. Similarly sleeves with bands at the end are irritable as it restricts free movement.

Essentially, be sure that fabrics are soft and absorbent, suitable for the child's sensitive skin. Organdy collars for girls' frocks and heavily starched shirts for little boys are uncomfortable to wear. Clothes that are too large can be as uncomfortable as those that are too small. To avoid this, select garments that fit but have enough allowance for child's growth. Regarding sleeves, raglan sleeves provide for more freedom as well as growth than set-in fitted sleeves.

Safety

Comfort and safety go hand-in-hand for children's clothing. Clothes which are too large may be uncomfortable and may also be unsafe. Loose garments can catch on fire more easily (than fitting clothes) around the cooking area. Hanging sashes and trims can get caught in the moving parts of the tricycle or objects. As bright colours can be more easily seen by motorists than dark and gray colours, it is advisable to use such colours for children's clothing. Loose buttons and trims are unsafe for infants and toddlers who put every thing into their mouth.

Self-help

Dressing and undressing themselves give children a feeling of confidence and self-reliance. Many of children's clothes are too difficult to put on or take off by the children themselves. Remember, it becomes frustrating for a child who wants to dress on her/his own.

The most essential self-help feature is the opening in a dress. This must

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be large enough so that the child can get in and out of the garment easily. Front openings are easier to handle. Buttons should be large enough to be grasped by a child's hand. Front and back side of the dress should look different so that the child can learn to identify it easily. Small snaps, hooks and eyes, and bows tied at the waist or the neck and small buttons with thread loops retard the self-help features in a dress.

Appearance

Children have their own ideas about their clothing and they should be allowed to express their preferences. Exercising some choice at the younger ages will help them develop their ability to select appropriate clothes. Bright colours for outer wear make it easier to spot a child on the play ground or street. Lines should highlight desirable features and camouflage undesirable ones. Fabric designs should be in scale with smaller figures. Usually small checks, strips, plaids and dainty prints are best. Although large designs may be interesting, often they overpower the small child wearing it.

Allowance for growth

Children's clothing should have allowance for growth, especially in length. It is not advisable to buy a much larger size as they are neither comfortable nor safe. It is better to choose clothes to fit with the provision to increase length. Select fabrics which do not shrink. Trousers can have cuffs at the hemline which can be later let down to increase the leg length. Adjustable straps on skirts are a must. Raglan sleeves allow for growth better than set-in sleeves. Tucks and pleats at the shoulder line can allow for increasing width.

Easy care

Children are happier if they do not have to be worried about getting their clothes dirty. Even mothers appreciate easy care clothes, ones which can be easily washed and need little or no ironing. Flat seams are essential as they wear longer than plain seams. Areas of strains as knees, pocket corners and elbows can be reinforced.

Fabrics

Soft, firmly woven or knitted fabrics that are easy to care for, comfortable to skin, that do not wrinkle or soil readily, are the desirable fabrics for children's clothing. Avoid clothing which must be drycleaned. Printed

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fabrics, corduroy and textured fabrics show less wrinkles and soil. Cotton is the most widely used fabric as it is easily washable and comfortable to wear. Wool is warm but requires special care; it may irritate children's delicate skin, and hence must not be worn next to skin. Polyester, nylon and acrylic clothes wear well and are cared for easily. A blend of cotton and polyester is often more comfortable for a child than pure polyester, as it is more absorbent.

ACTIVITY 2

Observe children of various age groups and note what clothing they wear at ages 2 years, 5 years, 8 years, 11 years and 16 years.

9.4 CLOTHING REQUIREMENTS AT DIFFERENT CHILDHOOD STAGES

We have seen the general clothing needs of the children in the last section. Each stage of childhood has specific characteristics that need to be kept in mind while selecting their clothes.

Infancy (birth to six months)

During the early months the most important factors are warmth, comfort and hygiene. At this age, infants are basically feeding, sleeping and eliminating. Hence the clothes must be comfortable. One can stitch or select clothes which open down the front or have large openings to avoid slipping the dress over their heads. Also, draw strings, especially around the neck, should be avoided as these can get entangled. The fasteners used can be placed so that they can be reached easily and they can be of a kind that will not injure the baby in any way. It is advisable to have plenty of garments that need to be changed often like shirts and diapers.

Physically at this stage, the baby's skin is very delicate and sensitive and thus would demand very soft, light-in-weight and simple-to-put-on

FIGURE 1: CLOTHES FOR INFANTS

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and take-off clothes. The fabrics with sizing are not suitable for the babies as it might scratch the skin. Even all wool flannel fabrics for winters would be irritating to the skin, thus a baby flannel, a mix of wool and cotton or silk is preferred. Infants grow very fast at this stage so it is advisable not to buy too many clothes in smaller sizes.

Diapers are the first and most essential requirement for infants. These have to be soft, absorbent, easily washed and quick drying. It is quite common for families to make cotton diapers at home. If old cotton sheets are used for the purpose, they need to be well sterilised and disinfected. Many families have replaced home made diapers with 'gauze' and bird's eye diapers that are available in the market. Pre-shaped diapers are also available but one should be certain about the fit for the baby.

Undershirts are worn in most climates; depending on the weather and geographical location, the material for the undershirt should be selected suitably. Cotton undershirt is suitable for warm climate and soft wool-cotton blend shirts are suitable in cold climate. Usually, shirts and diapers form the basic garments for the infant. Cotton shirts in various styles that slip on easily are preferred.

Figure 2: Pre-shaped diapers

In rural areas, it has been observed that infants wear clothes which are simple and homemade from used materials.

Creeping age (6 months to one year)

This is the stage when the child begins to show signs of independence. It is very interesting to see babies pull themselves up to the furniture to stand, trying to reach out to objects, to sit or stand on their own. You will notice that all these activities would need clothes for protection and comfort.

Apparel for children in this age group has to be such that it allows for free movement. Thus, the basic clothing needs are loose and non-interfering garments. For clothes to fit loosely, both knitted and bias cut garments are most suited as they stretch allowing for some growth. As this is the stage to develop good posture, care must be taken in selection of right clothes. Too much bulk can hamper motor movement. Light weight garments are preferred over tightly knitted or woven ones. These would

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be easier during play and will also be comparatively warmer to enmesh air, specially in winters. Do not make children wear too many clothes. The

FIGURE 3: COMFORTABLE CLOTHES FOR CRAWLING AGE

clothes should be made of suitable fabric, i.e., one that is soft, smooth and does not collect soil readily. They should be easy to care for, i.e., wash and iron. Some fabrics like knits and seersuckers (crimpled striped material) are excellent as they do not require ironing. Some cottons and rayons are wrinkle resistant as they are treated with special finishes. As children spend most of their time playing, their clothes may require frequent changes as these would get soiled. It is thus important to look at the feature of convenient openings in the garment to slip off and put on easily.

Most suitable garments for this age are rompers and sun-suits made from knitted or woven material.

FIGURE 4: APPAREL DESIGNS SUITABLE FOR CRAWLING AGE

While selecting these garments it is important to keep in mind the features of size and looseness so that the garment does not come in the way of the child's movements. During the crawling stage, soft-soled shoes may be worn if protection from the cold is needed. Training pants are often worn when toilet training begins. These are made of fabrics that fit snuggly at the hip.

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Toddlerhood (1–2 years)

If you observe a few children in this age-group and you will notice that they are very active. They need freedom to play indoors as well as outdoors. They want to do most of the things themselves. Now as they start walking, they want to reach out for anything they see. At this stage shoes or footwear become a very essential part of the clothing. The correct fit in shoes and socks for a small child is essential for foot comfort and health. The principle clothing concern in the toddler age is the selection of shoes. When walking begins, flexible soled shoes with rough soles of $\frac{1}{8}$ inch thickness are worn. These may be without heel or a slight heel, and should be full and puffy in the toe area.

Shoes should be selected and fitted carefully because the soft bones of a child's foot may be injured by wrong fitting or badly shaped shoes. One must be sure to consider the length, width, height of toe space and fit of the heel.

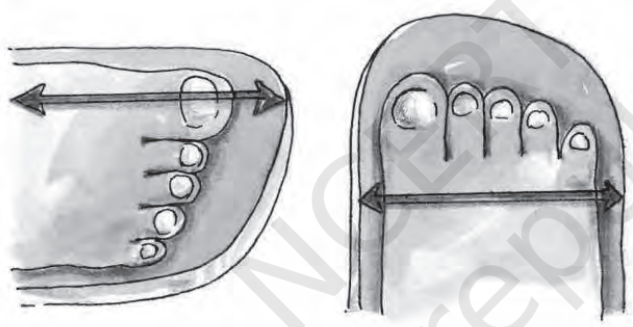

Figure 5: Correct fit of Shoe

For correct fit, they should be fitted on the child. The shoes that fit well help to build good body skills in balance, climbing and running. As children outgrow their shoes quickly, shoes need replacement frequently to avoid foot related health dangers.

For toddlers overalls are the most suitable dresses. These need to be large at the crotch to allow for diapers. By the time children are 2 years old, they want to dress on their own. Then it is important to select garments with self-help features that have been listed earlier.

Activity 3

Make a size chart of toddlers according to weight and height by measuring four children in this age group, two girls and two boys.

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Preschool age (2–6 years)

Like other age groups, health and comfort of preschoolers is an important consideration in selection of their clothes. Clothes have to be selected suitably for these children as they play a lot, and the garments should be able to withstand the wear and tear that the average child will give them. Clothes should be made from light weight materials that are pre-shrunk and are easy to care. Cotton is the most suitable fabric for preschoolers. It is hygienic, absorbent and easy to launder.

The design features on the ready-to-wear preschooler's dress must provide ease in care. Sometimes dresses have trimmings that make the garment difficult to wash and iron. It should be such that it can withstand many launderings and hard wear. Be sure that fasteners and trimmings are securely attached, decorations are easy to iron, and seams are flat and well finished.

FIGURE 6: APPAREL FOR PRESCHOOLERS

Children in this age grow rapidly so it is important to make or buy only few garments that will serve for all occasions and purposes. While buying expensive clothes, look for growth features as discussed in the previous section. This will enable a garment to be worn over a longer period of time.

Preschoolers may have definite preference for colours and styles. They start showing interest in their clothing. Personality plays an important role in children's choice of clothing. Some girls prefer feminine style and like to wear frocks with frills. Preschool boys may not be as dress conscious as girls, but they like to dress like other boys and be comfortable. It has been observed that, at this stage, girls are permitted to wear pants/jeans/ shorts like boys, although the opposite is not true for boys.

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Individuality of each child should be respected through clothes, even if they are twins. Identical twins should not be dressed alike unless they wish to. It is important that preschoolers be given a chance to express their choice while making a purchase for their clothing.

Self-help features are important for both child and the mother. These features help the child to become more independent and self-reliant. The desirable features of preschoolers' dresses are one piece garment with front long openings that can be easily reached, large buttons, large and comfortable necklines without collar and large armholes.

In brief, clothes for preschoolers should be comfortable to wear, easy to maintain, durable to use that provide allowance for growing needs, look attractive in design and colour, and encourage self-reliance.

Elementary School Years (6–11 years)

As you read in the previous chapter this is the stage of middle childhood. It is a period of heightened physical activity, and both boys and girls are interested in sports. Clothing now plays an important role in their social and emotional development.

They develop likes and dislikes for certain clothes to gain acceptance from their peers, and parents need to understand this developmental change. A sensitive child may experience humiliation and develop lack of confidence if her/his clothes appear very different from those of her/his peers.

FIGURE 7: SPORTY AND COMFORTABLE DRESSES FOR 5–8 YEARS

Comfortable clothing is essential at this age too. Boys now are very active and prefer wearing rugged clothes that can withstand their rough-and-tumble play. Girls may prefer 'boyish' clothes or may opt for feminine dresses.

Most children can select what they want to wear, and resent suggestions from parents.

Fitting is an important aspect to be considered while selecting clothing for school children. A poor fit dress is often discarded by the children. However, some children may select a dress on the basis of style even if it is not comfortable.

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To cater to their physical needs the children would require absorbent fabrics so as to absorb perspiration. Most suitable fabrics are cotton, voile, etc. Factors like safety, easy care, growth allowance and suitability to their physique are also important for school going children, just like younger children as has been discussed in the previous sections.

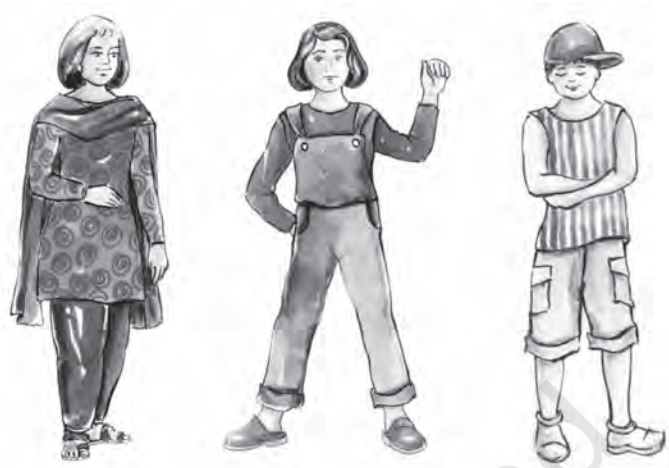

FIGURE 8: COMFORTABLE CLOTHING FOR ELEMENTARY SCHOOL AGE GROUP

Adolescents (11–18 years)

During adolescent years, growth is very rapid and different parts of the body grow at different rates. In early adolescence, a minimal wardrobe is advisable at any one time, since the child is going to outgrow the clothes very quickly.

The qualities in clothes that are most important to teenagers are fit and style. They may not be guided by the quality of fabric or its construction.

Adolescents not only wear new styles, they also create new styles. They are earnest followers of fashion and fads. They would like to spend large sums of money for their clothing. Dressing the way peers are dressed or imitating their role models in dress is a sign of their struggle for a sense of identity.

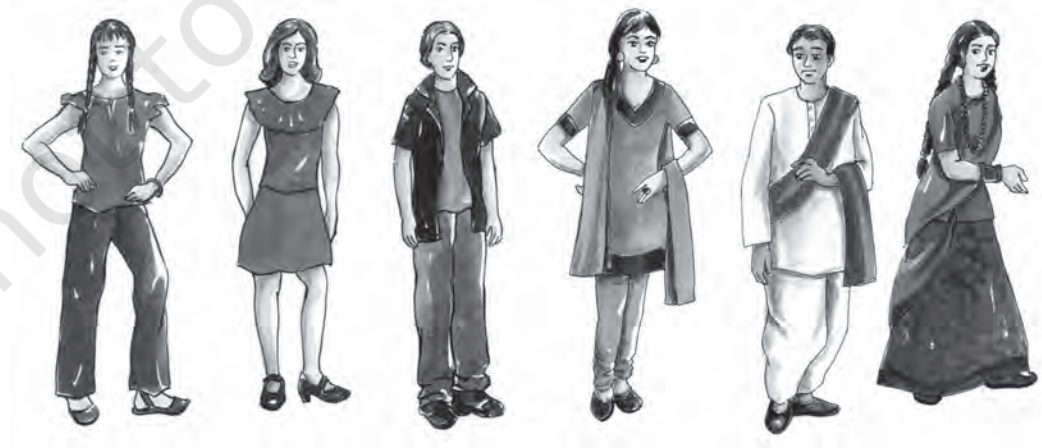

FIGURE 9: APPAREL DESIGNS FOR ADOLESCENTS

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When dressing up for sports or workouts, one should make choice of clothes and shoes that are comfortable and prevents such problems as strains, blisters, sprains and sore legs and ankles. Fabrics should be easy to wash, as simple hygiene can save the skin from irritation and rashes. Garment design and fabric should allow for free movement and absorption of perspiration.

9.5 Clothes for Children with Special Needs

You would now agree that apart from protection, clothing provides an opportunity to the child to develop a sense of autonomy and competence. It communicates impressions of the self to others in the social environment. Sometimes children with disability may have limited physical movement, but they have all the potential for learning and growing.

The task of dressing and undressing is very important for children with special needs. Depending on the nature of disability, some children are able to dress themselves independently. This gives them emotional satisfaction and also a feeling of pride. But if the child is severely disabled or incontinent, she/he is helped by the carer, making the process time consuming and tiresome.

Garments for children with special needs are selected according to the type of disability and the associated difficulties. As **comfort** is the primary criterion, cotton is the most preferred fabric for summer, and velvet corduroy and cotswool for winter. The garments selected should be strong so as to withstand abrasion in case the children use orthotic devices or wheel chairs. Garments should have **reinforcements** at specified areas for calipers and braces. Openings should be easily accessible and easy to fasten. Hence, velcros and zippers with key chains are good choices. Needless to say, garments should be easy to wash. Wearing and taking off should be simple, and so wider necklines, waist belts with elastics, front open plackets and front pockets can be the preferred choices.

It's very important to look at the **aesthetic appeal** of the clothes. They should look like clothes for any child, well-stitched yet easy to wear. They should be appealing in colour and print so that the wearer feels good. However, the best garment is the one that is constructed to cater to the individual needs of the wearer and carer.

On the whole, this chapter informs us that what children wear, i.e., their apparel, has an important role in their personality development. The clothes not only must be appealing to the eye and comfortable to wear, but also ecologically and socio-culturally appropriate.

With this chapter we conclude the unit on childhood. Having studied adolescence in the first two Units, we now move to adulthood from the next section, i.e., Unit IV.

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Key terms

Apparel, Clothes, Fashion, Clothing need, Childhood stages, Children with special needs.

■ REVIEW QUESTIONS

1. Give any three reasons for why you wear clothes.
2. What are the factors that affect the selection of clothing for children?
3. Discuss any four clothing needs of children.
4. Why do children's clothing requirements change with age? Discuss the clothing features of children at infancy, preschool age and elementary school years.
5. What should be the features of clothes for children with special needs?

■ PRACTICAL 15

Our Apparel

Theme: Clothing practices related to various occasions

Tasks:
1. Record the different types of apparel used for various occupations, rites and rituals.
2. Find out the significance for their usage.

Purpose of practical: To help the students understand the significance of clothing practices for various occupations, and rites and rituals.

Conduct of practical

(A) With respect to occupation–
- Observe and interact with people involved in any of these professions – Medicine, Defence, Government Department, Construction or any other.
- List the fabric type, colour and apparel worn by them.

(B) With respect to rites and rituals
- Observe and interact with people regarding any of the following events– marriage, child birth, death and initiation ceremonies like *mundan* and *namkaran*.
- List the fabric type, apparel, colour and designs of the clothing worn by them.

(C) Prepare an illustrative report with discussion and suggestions on appropriateness of the apparel in terms of fabric, colour, design and texture.

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UNIT IV

Adulthood

With the advent of adulthood, the adolescent passes through the portals of what may be termed as the "real world". One enters the world of higher education, work, and marriage, and gets involved in establishing one's own family. Hence responsibilities of the individual increase manifold. In this unit you will learn about the major factors that play a role in determining the quality of adult life, these being, financial planning and management, maintenance of fabrics and apparel that one uses personally as well as in the home.

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Financial Management and Planning

10

Learning Objectives

After completing this chapter the learner is able to —

- understand the meaning and concept of financial management.
- know the different types of income.
- explain the steps in making family budgets.
- describe meaning of savings and investments.
- discuss the principles of sound investments.

10.1 Introduction

(i) **Financial management** in the context of a family simply means management of finances. Finances are all types of income available to a family which include salary, wages, rent, interest, dividends, bonus, retirement benefits and all other forms of monetary receipts. Planning, controlling and evaluating the use of all these types of incomes is called financial management. Its purpose is to give the family greatest satisfaction from the resources at hand.

The quality of living that can be exchanged for financial resources is dependent not only on how much income is available, but more importantly on the regularity and stability of income. Therefore, it is important to learn the skill of managing money as a resource. This chapter will deal with the types of family income, management of income and the steps in making family budgets.

(ii) **Financial planning** is a component of financial management. The term budget is often used for the planning stage in financial management. When families make budgets, they see to it that the family income is used in a manner that fulfills all the present needs of the family members and also takes care of the long term goals of the family. Thus

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families are able to achieve their objectives by optimising the use of their resources. In addition, financial planning minimises wastage of money on non-essentials, thus making families save a part of their income for future use. This is, however, possible when the family monitors its financial plans and evaluates the plans from time to time. Commitment of family members towards the success of the financial plan is very important for it to show any results.

Management is using what you have (resources) to achieve what you want (goals and objectives). Family resources are the resources that are available to the individual or the family at a particular time, which help them reach their family goals. Family resources include human resources such as knowledge, skills, health, time and energy; material resources such as housing, money and investments; and community resources such as the library, parks, community centres, hospitals, etc. In order to ensure maximum utilisation of resources it is important to manage them well.

A family is a consumption unit while being a social unit, and its purpose is to manage the finances of the family for the well-being of its members. Money is one of the important family resources. A family cannot lead a comfortable life without sufficient money. Managing money effectively to meet present needs and future goals is a learned skill. So let us understand what we mean by family income.

10.2 Family Income

Family income means the sum total of the income of all types and from all sources of all the family members in a given time period. It can be annual, monthly, weekly or daily income. However, for official purposes, it is considered as the annual income in a financial year which is generally from 1st April to 31st March of the next year.

Income may be in the form of

- Wages
- Salary
- Profits from business
- Commissions
- Rent from properties
- Interest on cash loans
- Dividends
- Pensions
- Gifts
- Royalties
- Tips and donations
- Bonus
- Subsidies, Charities, etc.

Activity 1

Participate in a group discussion in your class on "Communication Technology – a curse or a boon?"

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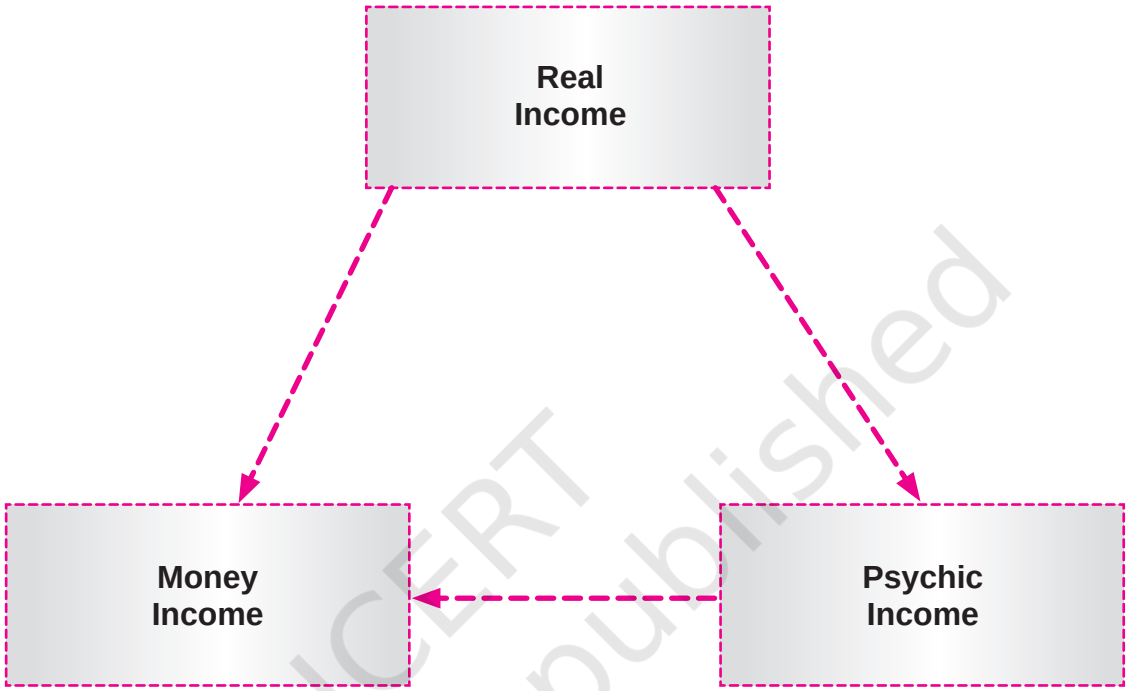
Types of family income

There are three types of family income.



Before we go into the details of different types of family income, let us understand what is money and its functions.

Money is what money does. Two most important functions of money are:

- Serving as a medium of exchange, and
- Measurement of value

Thus money is "anything which is generally acceptable in exchange of commodities and in terms of which the value of other commodities is determined".

Importance of money

- Money serves as a medium of exchange, thus doing away with the problems of spending time for exchange to materialise.
- Money serves as a standard of value, i.e., a common denominator in terms of which the value of all other commodities is expressed.
- It works as a standard of deferred payments facilitating savings and investments, which are the basis for capital formation, and hence for better standard of living.
- Storage in terms of money is durable for long time periods, facilitating accumulation for investment in production and improved standard of living for the family.

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(a) **Money Income** is the purchasing power in rupees and paisa that goes into the family treasury in a given period of time. It comes to the family in the form of wages, salary, bonus, commission, rent, dividends, interest, retirement income, royalties and any other allowances to any member of the family. Money income is converted into goods and services required for daily living, and often a part is diverted into savings for delayed use or for investment purposes.

ACTIVITY 2

Identify all the sources of money income available to your family in a month.

The frequency and pattern of flow of money income varies from family to family. For example in rural areas agriculture is the main occupation. The income of a farmer is not regular but she/he earns money when she/he sells the crop which may be twice in a year–the rabi and the kharif crops. In contrast, a person having a job will have regular income every month.

(b) **Real Income** is defined by economists as a flow of commodities and services available for satisfaction of human wants and needs over a given period of time.

This definition has three important points, namely:

- Real income is a flow of goods and services, it is not stagnant.
- It consists of goods and services which might or might not be available with money, e.g., produce from your own land, services of a household.
- There is a time period involved – it may be a month or a year.

Real income is of two types- direct income and indirect income

1. Direct Income – consists of those goods and services available to the family members without the use of money. For example, services rendered by family members, like cooking, laundering, stitching, maintaining kitchen garden, etc. A house which is fully paid for and community facilities like parks, roads, libraries also come under direct income.
2. Indirect Income – those material goods and services which are available to the family only after some means of exchange (ordinarily money) has been obtained, e.g., use of money to buy good quality vegetables because it involves one's skill and ability to select.

(c) **Psychic Income** is the satisfaction that results from the ownership and utilisation of goods and services. It can also be defined as the satisfaction derived from real income. It is difficult to quantify psychic income in terms of rupees. It is a form of hidden income. It is intangible and subjective and the most important in terms of quality of living.

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10.3 INCOME MANAGEMENT

Income management may be defined as planning, controlling and evaluating the use of all types of income. Its purpose is to simply get the greatest satisfaction from the resources at hand.

ACTIVITY 3

Identify the different sources of direct income of your family.

No two families, even though they have identical incomes, will have identical needs and desires. Thus every family must devise their own plan of expenditure keeping in mind their goals, needs and desires. For efficient income management it is essential that families recognise and analyse all resources available to them.

10.4 BUDGET

Budget is the most common planning device for the use of money. A budget is a plan for future expenditure. It represents the first step in the managerial process as applied to money. Its success depends upon

- its being realistic and flexible.
- suitability to the group for which it is prepared.
- quality of the control and evaluation steps which follow.

A family budget gives in detail the income and the expenditure of a family for a month or a year. It mentions all the sources of income during the period and also all the items of expenditure under different headings, such as food, clothing, housing, entertainment, travel, education, health and medicine and savings.

Steps in making a budget

There are mainly five steps in making a budget. They are as follows:

(i) **List the commodities and services needed** by the family members throughout the proposed budget plan. Group the related goods and services together. The following grouping may be helpful:

- Food and related costs
- Housing
- Household operations – fuel, utilities
- Education
- Transportation
- Clothing
- Income tax
- Medical
- Personal allowances

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- Miscellaneous – recreation, house furnishings
- Provision for future – saving, retirement

(ii) **Estimate the cost** of the desired items totaling each classification and the budget as a whole. General market trends must be considered while making these estimates. For example, if prices are showing an upward trend, sufficient margin should be allowed to cover such increases.

(iii) **Estimate total expected income.** It is helpful to list income under two headings – assured and possible income. The budget should ensure that necessities are taken care from the assured income and the 'nice but not necessary' items can be obtained from possible income.

(iv) **Bring expected income and expenditure into balance.** Sometimes expenses are more than income. There are two ways to bring them into balance. One can either increase the income (for example by, taking up an extra job/work) or cut expenditures (less frequent outings or less expenditure on festivals).

(v) **Check plans** to see that they have a reasonable chance of success. The plans are checked in light of the following factors:

- The needs of the family have been met.
- The budget allows for emergencies. A joint fund may be kept aside for emergency period.
- Solvency is assured. Solvency is the ability to pay bills or debts as they fall due.
- The national and world-wide conditions have been considered (e.g., global economic recession).
- The long term goals of the family are recognised.

Advantages of planning family budgets

- Planning enables a family to take an overview of the use of their income.
- Amounts allocated to various categories can be studied in relation to total income.
- The budget helps families use their income to first attain those goals which they consider most important. Spending without a plan frequently results in wastage of income.
- Family members are less likely to be swayed, as they can make rational decisions which are reflective of long term goals of the family.

10.5 Control in Money Management

After planning, controlling is the next step in money management. Control in financial management is usually of two types: checking to see how well the plan is progressing and adjusting wherever necessary.

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Checking is important as it tells how one's plans are progressing and where adjustments are needed. There can be two kinds of checks:

(i) Mental and mechanical checks: Mental checks are usually established by breaking the allocations into units which can be related to actual expenditures. For example, Rs. 1,000 may appear to be a large amount to a student, but when one realises that one must purchase a pair of shoes, a new dress for a festival and a few books all at one time, it is obvious that one must take extreme care in the selection and the price in light of the total money available. Thus, in mental checking one visualises clearly the items a specific amount must cover.

A mechanical check is one in which you set aside a certain amount of money in cash to be used for a particular item. For example, many homemakers have a food purse in which monthly allocation for food is kept. All food expenses are carried out from the money in this envelope. Quick disappearance of the money shows how rapidly the money is being spent.

(ii) Records and accounts: Records and accounts show the distribution of money after expenditures have been made. Such records can be quite casual, such as keeping everyday written account or receipted bills, or they can consist of formal and detailed accounts. For a family the purpose of records is to show the distribution of money which has been spent and to compare the amounts spent with the amounts allocated to a particular group of items.

ACTIVITY 4

Identify the ways in which your family keeps accounts of its expenses.

Advantages of record keeping for a family

- Monthly expenditure can be compared with the spending plan and show us where adjustments must be made to avoid excessive expenditure.
- Helps in identifying those categories or sub-categories where expenditure is too high or too low. This in turn enables us to make better future budgets.
- Some record keeping methods need bills and receipts to be maintained. Thus a proof of payment is at hand in case of a poor product or service if one wants to lodge a complaint.

Single sheet method is a simple and flexible method of record keeping. The record of expenses are kept on a single sheet (see Figure 1).

Adjusting the plan is very important to keep it on track. Adjustments may be needed if the original planning was poor because of factors beyond the family's control like emergencies, family going on an unplanned shopping spree or inadequate checking mechanisms which do not tell the family that there is a considerable gap between the plan and its execution.

Evaluation is the final step in money management. The satisfaction derived from expenditures is one of the most important means for

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determining the success of a budget. Evaluation is done in light of specific goals such as obtaining fair value of money spent, being able to pay bills when they fall due, providing for future and improving economic status of the family.

Records of expenditures may be kept on a single, double or multiple sheets. This method is simple and flexible. Also the sheet can be tacked on the back of a door or cabinet with a pencil hanging nearby, which makes it convenient. Although the double and multiple sheet methods can be more adequate than single sheet, yet if the single sheet is well worked out it may include essential data. Consider the following example

SINGLE SHEET METHOD FOR THE MONTH OF OCTOBER 2008			
Category	**Amount Allocated**	**Amount Spent**	**Total**
Amount Spent			
1. Food			
Grocery			
Milk			
Fruit/veg.			
Meat – poultry			
Eating out			
2. Housing			
Rent			
Repair			
Loan			
3. Clothing			
Children's clothing			
Adults' clothing			
School Uniform			
4. Education			
Fees			
Notebooks			
Books			
5. Medical			
6. Any other			

FIGURE 1: SINGLE SHEET METHOD

After having learnt about the family income and its management by planning, controlling and evaluating we have a good idea about what we need to do to make optimal use of our resources. The next step would then be **to learn about savings and investment of money so that we can make good use of it in future.**

10.6 SAVINGS

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Savings means keeping aside a part of your money or other resource for use in future or for further production. Savings are important for a family to take care of their future needs. Savings are also important for any economy to survive and grow as savings lead to capital formation and accumulation. This happens when savings are put to productive use by starting a business or depositing money in banks and financial institutions which mobilise public savings and use them for productive use.

Savings of a family depend on the ability to save and willingness to save. Ability to save depends on per capita income. Higher income families have a higher potential to save compared to low income families who have little to save after taking care of their basic needs. Willingness to save depends upon the long term goals of the family and how willing they may be to sacrifice some luxuries in the present to take care of the future.

Saving money is not easy. It takes discipline, planning, co–operation and hard work on the part of family members. But saving money is very important for family security and happiness. Saving for saving's sake is futile. Savings have meaning only when the purpose is well-planned and understood by all family members and the money wisely invested for future use.

10.7 Investment

Investment implies using the money for further production. If savings are put under the folds of a *saree* or kept hidden in a pitcher, it is not going to result in investment. Savings have to be put to productive use in the economic sense to result in investment. Investments may be in two types of assets – physical assets and financial assets. Savings, if put into bank accounts, post offices, or financial credit societies institution, in shares and securities, insurance policies, etc., lead to formation of **financial assets.** They provide financial security to the family and are productive in economic terms. Savings in **physical assets** means using your savings to buy land, property, house, gold, household durables, etc. This kind of investment is not productive in the economic sense of the term and does not result in capital formation. However, it usually has long term positive returns.

Activity 5

Identify the various avenues of savings and investments that your family is making use of.

Principles underlying sound investments

Families spend a lifetime accumulating savings. These savings must be invested wisely to give the family good returns and ensure that the money is safe and available to them when they need it.

Let us now discuss the principles underlying sound investments.

(i) **Safety of the principal amount:** The principal itself has to be safe if it is to earn interest or dividends. This principal is the most important

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factor for sound investing. Safety can be ensured by

- Owning securities in both government and private sectors like National Savings Certificate (NSCs), Public Provident Fund (PPF), *Kisan Vikas Patra* (KVPs), fixed deposits in banks
- Investing in companies in different geographical zones
- Owning shares and bonds in different companies
- Studying the market reputation of the issues of the securities
- Varying the kind of securities purchased – agricultural land, real estate, stocks, bonds, fixed deposits, etc.
- Understanding prevailing phase of business cycle

(ii) **Reasonable rate of return:** In general, the higher the rate of return on an investment, the greater the risk, i.e., safety of principal and rate of return are inversely related. To some people, particularly those depending upon investments as their major source of income, regularity of income is more important than a higher but fluctuating return. This is determined by the selection of securities. Therefore, before investing money one should compare the rate of interest and the associated risk under various schemes and options.

(iii) **Liquidity:** It is the ability to convert the securities into cash without sacrificing value. The more liquid an investment is, the higher is its price, or in other words, the lower the return to the investor. Hence income and liquidity must be balanced.

(iv) **Recognition of effect of world conditions:** Changes in business trends will affect both the amount of protection needed, the ease of providing it and the methods chosen to provide it. Considering the long time business trends, a family must recognise the effect of their savings on the entire economy. Their willingness or unwillingness to invest in business enterprises at various stages in the cycle may well have an effect in reducing the extremeness of the cycle.

(v) **Easy accessibility and convenience:** While choosing an investment option for family funds, one must consider the knowledge required for its success. A family may choose an investment which might result in loss simply because they did not foresee the problems involved in the management of security or property acquired.

(vi) **Investing in needed commodities:** The date on which an investment is to mature is important for a family that plans to have funds available for a known future need. Therefore, while investing money, families should purchase securities of lengths and durations so that they mature close to the time of the envisaged need or needs, e.g., for the child's higher education.

(vii) **Tax efficiency:** Investments should be made in those instruments which lead to tax saving. A number of provisions in the Income Tax Act can be used to save taxes. Investment in insurance policies,

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Employees Provident Fund, PPF, etc., have built-in tax rebates with a specific ceiling limit.

(viii) **After investment service:** While selecting an investment instrument, customer care or customer service must be a critical decision-making factor. Good customer care includes easy encashability of securities, good communication network, timely dispatch of interest or dividend warrants, timely disbursal of the due amount after completion of investment period, keeping the customer posted about changes in the policies, interest rate, etc. A customer-friendly company provides the needed support and protection to the investor as and when required.

(ix) **Time period:** The "lock in" period is a critical aspect to be considered before deciding on an investment. The longer the period of investment the higher is the rate of return. For example in most fixed schemes the rate of interest is higher for long-term deposits compared to short-term deposits. Thus the investor must choose between a higher return with a longer waiting period or a comparatively lower return for a short lock-in-period, based on the needs and requirements of his/her family.

(x) **Capacity:** One should not invest beyond one's capacity so that the investments can be free of undue hardships. It is important to balance present needs with future needs and security.

10.8 SAVINGS AND INVESTMENT AVENUES

Following is the list of saving and investment options which are available to an Indian consumer:

- Post Office
- Banks
- Unit Trust of India
- National Savings Scheme
- National Savings Certificates
- Shares and Debentures
- Bonds
- Mutual Funds
- Provident Fund
- Public Provident Fund
- Chit Fund
- Life Insurance and Medical Insurance
- Pension Schemes
- Gold, House, Land

ACTIVITY 6

Visit a bank in your neighbourhood and enquire about the various facilities, investment and savings options available to the customers.

10.9 CREDIT

Inspite of the fact that families save and invest money income they have to

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sometimes use credit to meet their needs or obligations. That is, families make use of credit to avail of goods and services whose initial cost is too high to bear at once. The word credit comes from the Latin word 'CREDO' meaning 'I believe'. Credit means getting money, goods or services in the present and paying for them in the future. In reality, it is a process of postponed payment, a privilege for which we have to sometimes pay a very high rate. At any given time the use of credit increases purchasing power and thus makes possible the provision of more goods or services than the cash on hand would allow. Families should understand the nature and operation of credit since repayment of the amount borrowed, together with interest for its use, must eventually be made.

Need for credit

Families use credit to meet needs or obligations. The need may be real or imaginary. If the initial cost of a commodity seems too large to save before the purchase is made, families borrow money to possess the commodity immediately; for example, land. The cost of the good is spread over a long period of time and the family can have the advantage of using the good during the payment period. Another reason for borrowing is to meet family emergencies like sickness of a family member. Families also borrow to meet obligations like marriage of children or performing rituals during death of a member. A self-supporting and self-sufficient family can always use credit in emergencies and do so with a feeling of confidence.

A lender will make a loan only when she/he believes that the borrower will repay the money she/he borrows. The lender may be a bank or any other financial institution. Their decision to give credit to individuals and families is governed by 4C's, which are mentioned below.

4 Cs of credit

Character means willingness and determination to repay a loan as agreed, even though it is at greater cost and inconvenience than the borrower anticipated.

Capacity means the ability to meet an obligation when it is due. Ordinarily capacity depends upon income. It is important to understand that the capacity of family to repay a loan depends not so much upon total income as upon the available margin over and above necessary expenses. The capacity of a family to repay a loan is determined by the difference between what the family receives and what it spends.

Capital means net worth. A family's capital is determined by the difference between what it owns and what it owes. The existence of this capital provides a margin of safety for the lender, since if the family's income proves to be inadequate to repay the loan, it can draw upon its invested capital.

Collateral consists of specific units of capital which are pledged as

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security for a given loan. Usually these units are placed in the possession of the lender with the understanding that if the borrower fails to pay the loan as agreed, the lender is to reimburse himself in so far as he can from the sale of the pledged collateral.

Commercial banks, cooperative banks and agricultural banks, credit unions, etc., are the main source of taking credit. One can also take credit from self-help groups of which one is a member. The members of this self-help group contribute some money every month and make a corpus amount. From this credit is given to the needy member based on her/his requirement and repaying capacity. These groups have members known to each other and hence no collateral is needed and the interest rate is nominal.

Before using credit the family should consider not only satisfaction gained by possession of the good or service but also future adjustments in family budget imposed by repayment of the loan. Managing credit includes determining when to use credit and when its use has become excessive. Credit is a useful resource when handled with an understanding of its potential and its cost.

If used indiscriminately credit can be disastrous for a family. Avoiding use of credit and taking credit at the lowest possible cost should be the first target for most families.

Let us conclude this chapter with an understanding that money and other financial resources can be multiplied and optimally used if certain measures, mentioned in the chapter, are adopted. As adult members of family, most people have to take care of many things. One such area in daily living is care of clothes and fabrics in the home. If fact, one can learn about the care of one's clothes from a young age. Let us read about this in the next chapter.

Key Terms

Financial Management, Financial Planning, Money Income, Real Income, Psychic Income, Family Budget, Savings, Investments, Credit

REVIEW EXERCISE

1. Indicate if the following statements are 'True' or 'False'.
   (i) Budget is the first step in money management.
   (True/False) _____
   (ii) Money serves as a medium of exchange of commodities.
   (True/False) _____
   (iii) Profits from business and gifts are a form of income.
   (True/False) _____
   (iv) One should first estimate the cost and then list the commodities and

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services needed while making the budget.
(True/False) _____

(v) Savings in physical assets are productive in economic terms.
(True/False) _____

(vi) The trend in business cycle is an important consideration under the principal of safety. (True/False) _____

(vii) The time period may be ignored while considering and deciding on an investment. (True/False) _____

(viii) The 4 C's of credit are character, capacity, capital and collateral
(True/False) _____

(ix) Nature of enterprise is not an important safety consideration.
(True/False) _____

Review Questions

(i) What do you understand by 'management of finances'?
(ii) Discuss the different types of income.
(iii) Discuss the steps in making a budget.
(iv) What are the controls that can be exercised in money management?
(v) Discuss the principles underlying sound investments.

Practical 16

Financial Management and Planning

Plan a budget for any festival celebrated in your school. One example under each heading is given.

No. of students: 30
No. of teachers: 5

S.No.	Item		Cost (Rs.)	
1.	Venue arrangement			
	Decoration			
	a)	Flowers	100.00	
	b)			
	c)			
	d)			
	e)			

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			Sub total	
2.	**Food**			
	a)	Sweets (Prasad)	200.00	
	b)			
	c)			
	d)			
			Sub total	
3.	**Stationery**			
	a)	Coloured paper	200.00	
	b)			
	c)			
	d)			
			Sub total	
4.	Miscellaneous			
	a)	Transportation		
	b)	Costumes		
	c)	Gifts		
	d)			
	e)			
	f)			
			Sub total	
			Grand total	

Note: Strike out that which is not applicable.

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Care and Maintenance of Fabrics

11

Learning Objectives

After completing this chapter the learner is able to —

- understand the aspects of care and maintenance of different fabrics.
- know the procedure of removing different stains.
- identify the process of laundry.
- describe the role of water, soaps and detergents in laundering.
- describe use and care of the fabric in relation to their properties.

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11.1 Introduction

You learnt in some of the previous chapters about the significance of fabrics around us. They protect and enhance humans and their surroundings. Care and maintenance of fabric products, e.g., clothing, furnishing, or any other use within the household, is very important. Final selection and purchase of any product or material is largely based on its appearance in terms of colour and texture, its quality and its functionality. It therefore becomes very important that these characteristics are retained for the expected life of the material. Care and maintenance may thus include:

- keeping the material free of physical damage;
- retaining its appearance:
  - Removal of stains and dirt without damaging its colour
  - Retaining or refurbishing its brightness and textural characteristics such as softness, stiffness or crispness
  - Keeping it free of wrinkles or retaining creases or removing wrinkles and adding creases where required

11.2 MENDING

Mending is the general term we use when we try to keep the material free of damage occurring in normal use or due to accident. It includes the following.

- Repairing cuts, tears, holes
- Replacing buttons/fasteners, ribbons, laces or fancy attachments
- Restitching seams and hems if they open up

These are best taken care of as and when they occur. It is absolutely essential that they be attended to before laundering as the strain of washing may lead to greater loss to the fabric.

11.3 LAUNDRY

Every day care of the fabrics generally consists of washing to keep it clean and ironing to get a smooth wrinkle free appearance. Many materials often require special treatments to get rid of accidental stains, overcoming the grayness or yellowness that occurs due to repeated washings and adding stiffness or crispness. Laundering includes — stain removal, preparation of fabrics for washing, removing dirt from clothes by washing, finishing for its appearance (blueing and starching) and finally pressing or ironing for a neat appearance so that they can be stored ready for use.

Stain Removal

A stain is an unwanted mark or colouration on a fabric caused by contact and absorption of foreign matter, which cannot be removed by normal washing process and requires special treatment.

In order to use the right procedure for removing the stain, it is important to identify the stain first. Identification may be done on the basis of colour, smell and feel. The stains can be classified as:

(i) **Vegetable stains:** tea, coffee, fruits, and vegetables. These stains are acidic by nature and can be removed by alkaline medium.

(ii) **Animal stains:** blood, milk, meat, eggs, etc. These are protein in nature and removed by detergents in cold water only.

(iii) **Oil stains:** oils, ghee, butter, etc. These are removed by the use of grease solvents and absorbents.

(iv) **Mineral stains:** ink, rust, coal tar, medicine, etc. These stains should be washed first in acidic medium and then in alkaline medium

(v) **Dye bleeding:** colour from other fabrics. These stains can be removed either by dilute alkalies or acids depending on the fabric type.

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Removal of Stains – General Considerations

- Stain is best removed when fresh.
- Identify the stain and use the right procedure for its removal.
- For unknown stains, start with a simple process and move to a complex one.
- Repeated use of milder reagent is better than one time use of a strong agent.
- Wash all fabrics with soapy solution after stain removal to remove all traces of chemicals from it.
- Dry fabrics in the sun as sunlight acts as natural bleach.
- For delicate fabrics try out the chemicals on a small portion of fabric; if they damage the fabric, do not use them.

(i) **Techniques of stain removal**

(a) Scraping: built up surface stains can be scraped lightly using a blunt knife.

(b) Dipping: The stained material is dipped into the reagent and scrubbed.

(c) Sponging: The stained area is placed on a flat surface. The reagent is applied with a sponge on the stained area and absorbed by the blotting paper laid underneath.

(d) Drop Method: The stained cloth is stretched over a bowl. The reagent is put on it with a dropper.

(ii) **Stain removers/reagents for stain removal:** The various reagents used for stain removal should be used in liquid form and in concentrations recommended for their use. These reagents can be grouped as follows:

(a) Grease solvents: Turpentine, kerosene, white petrol, methylated spirit, acetone, carbon tetra chloride

(b) Grease absorbents: Bran, Fuller's earth, talcum powder, starch, French chalk

(c) Emulsifiers: Soaps, detergents

(d) Acidic reagents: Acetic acid (vinegar), oxalic acid, lemon, tomato, sour milk, curds

(e) Alkaline reagents: Ammonia, borax, baking soda

(f) Bleaching agents:

- Oxidising bleaches: Sunlight, sodium hypochlorite (javelle water), sodium perborate, hydrogen peroxide
- Reducing bleaches: Sodium hydrosulphite, sodium bisulphate, sodium thiosulphate

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Table 1: Common stains and the method of removing them from cotton fabric	
Stain	**Method of removal**
Adhesive Tape	• Harden with ice, scrape off, apply any solvent
Blood	• Fresh stain – wash with cold water • Old stain – soak in salt solution, rub and wash
Ballpoint pen	• Keep a blotting paper under it and sponge with methylated spirit
Candle wax	• Soak in cold water immediately, scrape off, dip in white vinegar, rinse with cold water
Chewing gum	• Apply ice, scrape off, soak in cold water, sponge with a solvent
Chocolate	• Soak in cold water, in hypochlorite bleach (javelle water)
Curry (Turmeric & oil)	• Wash with soap and water, bleach in sun. • Keep blotting paper under fresh stain and iron it. Then wash with soap and water. • Old stains can be removed by soaking in javelle water
Egg	• Wash with cold water, wash with soap and lukewarm water.
Fruits and Vegetables	• Apply starch paste on fresh stain. Then rub and wash. • Use borax, salt and hot water to remove it.
Grease	• Dip in or sponge with grease solvents — petrol, spirit or kerosene oil. Wash with hot water and soap. • Apply starch paste and dry in shade. After doing it 2-3 times it will be removed. • Soak in javelle water and wash with soap and water.
Ink	• Fresh stain can be removed by soap and water. • Apply lemon juice, curd or sour milk and salt and dry. • Javelle water can remove stain. • Rub in potassium permanganate solution and then dip in oxalic acid.
Ice Cream	• Sponge with a grease solvent, wash in hot soapy water.
Lipstick	• Soak in methylated spirit, wash with soap and water. • Rub glycerine, wash with soap.
Medicines	• Dip in methyl alcohol, or in a dilute solution of oxalic acid. Wash with hot water.
Mildew	• Sponge with hypochlorite bleach
Milk or cream	• Sponge with a solvent. Wash in cold water.
Paint or Polish	• Rub with kerosene and/or turpentine oil. • Bleach with sodium thiosulphate.
Rust	• Soak in oxalic acid and rub. • Treat as for ink stain.
Scorch	• Sponge with hydrogen peroxide. Stain will not be removed if fibre has been damaged.

Note:

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(a) These are the methods of removing stains from white cotton fabrics. Suitable precautions should be taken when applying on other fibres or on coloured materials.

(b) Stain removal is the preparatory step in laundry. It must be followed by washing or dry-cleaning and all traces of chemicals used should be removed.

Removal of dirt – the cleaning process

Dirt is the term applied to grease, grime and dust jammed between the fabric structure. There are two types of dirt. One, which is held loosely onto the fabric and can be removed easily and the other, which is held tightly by means of sweat and grease. The loose dirt can be simply brushed or shaken off or will be removed by steeping in water. The tightly held grease can be loosened in steeping process, but requires reagents that will act upon the grease to loosen the dirt. There are three main methods of removing grease – by the use of solvents, absorbents or emulsifiers. When cleaning is done by solvents or absorbents it is called **dry cleaning**. Normal cleaning – washing is done in water with the help of soaps and detergents, which emulsify the grease (break it in to very small particles). This is then rinsed with water.

(i) **Water** is the most valuable agent used for laundry work. There is a certain adhesion between fabrics and water. During steeping water penetrates into the fabric and cause wetting. **Pedesis** or the movement of water particles helps to remove the non-greasy dirt from the fabric. Washing in water alone, with agitation provided by hand or machine, will remove some loose dirt and particulate soils. Increase in temperature of the water increases its pedesis and its penetrating power. It is further beneficial when the dirt is greasy. However, water alone cannot remove the dirt that is not soluble in water. It also does not have the ability to keep the dirt suspended resulting in the removed dirt getting redeposited on fabric. Redeposition of dirt is the major cause of fabric graying over repeated launderings.

(ii) **Soaps and detergents** are the most important cleansing agents used in laundry work. Soap result from a reaction between natural oils or fats and alkali. If alkali is used in excess it is released when soap is used on the fabric. Synthetic detergents are synthesised from chemicals. Both soaps and detergents are sold in powder, flake, bar and liquid forms. The type of soap or detergent to be used depends on the fibre content, colour and the type of dirt on the fabric.

Both soaps and detergents share a critical chemical property – they are surface–active agents or surfactants. In other words, they reduce the surface tension of water. By reducing this effect water soaks more easily in clothes and removes stains and dirt faster. Surfactants and other ingredients in laundry detergents also work to keep the removed

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soils suspended in the wash water so they do not redeposit on to the clean fabrics. This prevents graying of fabrics.

There are some differences in soaps and detergents. Soaps possess a number of qualities that make them preferable to detergents. As mentioned earlier, they are natural products and less harmful to the skin and environment. Soaps are biodegradable and do not create pollution in our rivers and streams. On the other hand, soap is not effective in hard water, which results in wastage. Another shortcoming of soap is that it is less powerful than synthetic detergent and tends to lose its cleaning power over time. An added benefit of detergent is that they can be specifically engineered for each cleaning task and for use in different types of washing machines.

(iii) **Methods of washing:** Once the soap or detergent has emulsified the grease holding the dirt, it has to be held in suspension till it is rinsed out. Some parts of the fabric may have dirt, which is closely adhering to the fabric. The methods employed for washing assist in these two tasks – disassociating the dirt adhering to the fabric and holding it in suspension. The method selected depends on the fibre content, the type of yarn and fabric construction and the size and weight of the article being washed.

The methods of washing are classified as follows:

- Friction washing
- Kneading and squeezing
- Suction
- Washing by machines

Let us now discuss these methods in detail.

(a) **Friction:** This is the most commonly used method. This method of cleaning is suitable for strong fabrics like cottons. Friction may be caused by rubbing one part of the garment against another part of the garment with hands. Alternately using a brush over the dirty parts kept on the palm of the hand or on a scrubbing board if the article is big are also examples of friction washing. Friction is not applied on delicate fabrics like silk and wool and on surfaces like pile, looped or embroidery.

(b) **Kneading and squeezing:** As the name suggests, this method involves gently rubbing with hands of the article in soap solution. Since the pressure applied in this is very low, it does not harm the texture, colour or weave of the fabric. Thus the method can be easily used to clean delicate fabrics like wool, silk, rayon and coloured fabrics. This method would not be effective for heavily soiled articles.

(c) **Suction washing:** This method is used for articles like towels where brush cannot be used and when it is too big or heavy to be handled by kneading and squeezing technique. The article is placed in soap

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solution in a tub and the suction washer is pressed down and lifted repeatedly. The vacuum created by pressing loosens dirt particles.

(d) **Machine washing:** Washing machine is a labour saving device especially useful for large institutions, like hotels and hospitals. These days a variety of washing machines are available in the market by different companies. The principle behind each is the same. This is to create agitation in the clothes to loosen the dirt. For washing in these machines, pressure is provided by the movement of either the tub in the machine or a central rod attached to the machine. The washing time varies with type of fabric and amount of soiling. Washing machines can be manual, semi-automatic and fully automatic.

Finishing

After washing it is very important to rinse the article in clean water till it is absolutely free of soap or detergent. Very often in the last rinse some other reagents are added which can help to restore the freshness or brightness of the fabric. Other reagents may add to the body of the fabric and improve its stiffness or crispness.

(i) **Blues and Optical Brighteners:** You must have observed that with repeated use and washings white cotton articles tend to loose their whiteness and become yellow in colour. In case of synthetic or manufactured fabrics and their blends the discolouration is more towards gray.

The use of blues is recommended to counteract yellowness and to restore the whiteness. They cannot remedy the grayness. Blue is available in the market as ultramarine blue (in the form of a fine powdered pigment) and as liquid chemical dye. Right amount of blueing should be used in the last rinse. The powder blue is pasted with a little amount of water and then added to more water. This solution is used immediately, as on standing this powder tends to settle at the bottom and would give patchy results. Liquid blues are easier to use and give more even results. Care should be taken to see that blue is applied to the fabric in a thoroughly wet (but not dripping) condition, which is free of folds of wringing. Move the article in the blue solution for a short duration, remove the excess moisture and place it for drying.

Optical Brightening Agents or Fluorescent brightening agents are compounds with low grade or weak dyes that possess the property of fluorescence. These compounds can absorb light at a shorter wavelength and re-emit them at a longer wavelength. Treating a fabric with an optical fluorescent brightener can give it an intense bright whiteness, which can counteract both yellowness and grayness. They can also be used on coloured printed fabrics. Optical brighteners are sometimes referred to as whiteners. However, they cannot destroy a colour and

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therefore should not be confused with bleaching.

(ii) **Starches and stiffening agents:** Repeated launderings cause loss to body of the fabric, which also looses its gloss and shine. Starching or use of stiffening agents is the most common technique to make the fabric firm, smooth and shiny. This finish not only enhances appearance and texture, but also prevents direct contact of dirt with the fabric. Starching also makes the subsequent washing easier as dirt clings to starch rather than to the fabric.

Stiffening agents are derived from nature, either plants or animals. The most common stiffening agents are starch, gum acacia, borax and gelatin.

(a) **Starch** is obtained from wheat (maida), rice, arrow-root, tapioca, etc. They are available powder form in the market and have to be cooked before use. Consistency of starch depends on the thickness of the fabric to be starched. As a stiffening agent it is used only for cotton and linen. Thick cottons need light starching while thin fabrics need heavy starching. Commercially prepared starches available in the market are easy to use and do not necessarily require hot water for preparation.

(b) **Gum Acacia or Gum Arabic** is the natural gum obtained from the Acacia plant (babool tree) which is available in granulated lumps. The stiffening solution is prepared by soaking it overnight to dissolve it and then sieving it to get a lump free solution. This gives only light stiffening, which is more in the nature of crispness. It is used for silks, very fine cottons, rayons and silk and cotton blends.

(c) **Gelatin** is easy to make and use but is expensive compared to other homemade starches.

(d) **Borax** is not really a starch but the addition of a small quantity in the starch solution helps to improve its stiffening action. When the fabric is ironed after starching, borax melts and forms a thin film on the surface of the fabric. This is water repellent in nature and thus maintains the crispness even in humid climates.

Application of stiffening agent depends on the fibre content and the specific use of the article. For personal clothing it is often the user's choice as well. Care has to be taken when applying the starch solution that the correct consistency of the starch is taken and the fabric is in a thoroughly wet (but not dripping) condition. The fabric is kneaded well in the solution, excess squeezed out and dried. When starching dark coloured cottons a small amount of blue or tea concoction can be added to the starch solution so that it does not show up as white patches.

(e) **Drying:** After the clothes have been washed, blued and starched, they have to be dried, before they can be ironed or stored. The best way of drying is to hang the fabrics outside in the sun with the wrong side facing

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out. Sun not only dries the clothes faster but also acts as an antiseptic, and also as a bleaching agent for white fabrics. Delicate fabrics like silk and woolens cannot be hung for too long in the sun, as strong sunlight damages these fabrics. Synthetic fibres lose their strength when exposed to sunlight. These fabrics also tend to turn yellow, which is irreversible. So, it is best to dry these fabrics indoors.

Ironing

After you have washed your articles, you would notice that these articles have wrinkles and undesired creases on them. Ironing helps to get rid of these and creates creases where desired. Good ironing requires three things high temperature, moisture, and pressure.

An iron can provide high temperature. It can be a charcoal iron or an electric iron. The charcoal iron though cheap has certain disadvantages. The coal that is used to produce heat may stain the article being ironed and most important is that the temperature cannot be controlled in this type of iron. Different fibre groups have different thermal properties. Due to this they need to be ironed at their specific temperatures. This can be achieved by using an electric iron, where the temperature can be controlled. Thus, if electricity is not a problem, then an automatic electric iron is the best option.

The second requirement for ironing is moisture. Moisture would be automatically provided if you start ironing your clothes when they are damp after washing. If your articles are completely dry, then you can sprinkle some water on them and roll them in towel, so that moisture penetrates evenly throughout the article. Water can also be sprayed with a normal spraying bottle.

The third requirement for good ironing is pressure. This is provided manually by the movement of the iron over the article to be ironed. Iron is generally moved on the clothes along the length. The articles, which may stretch or loose their shape by the movement of iron, for example, laces should be pressed and not ironed. Pressing involves keeping the hot iron at one place on the cloth, then lifting it and then keeping it at another place on the cloth. Pressing can also be used for setting of any folds like creases, hems, pockets, plackets and pleats.

The table that one uses for ironing should be rightly padded, and yet firm. The top should have an even surface and should be of such size and height that it is comfortable for the worker. These days padded ironing boards are available in market. If these are not available, then on any leveled surface 3-4 layers of some thick fabric can be spread and used as a surface for ironing.

After ironing the articles are either given specific folds or are placed on

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hangers depending upon the storage space available. It is important that they are available in the finished state when required for use.

Dry-cleaning

Dry-cleaning can be defined as the cleaning of fabrics in a non-aqueous liquid medium. The important difference between dry and wet solvents is that while water is absorbed by the fibres, which causes shrinkage, wrinkle formation and colour bleeding; the dry solvents do not cause fibre swelling. Hence dry-cleaning is a safe method for cleaning delicate textiles. For dry-cleaning, the most common solvents used are perchloro-ethylene, a petroleum solvent, or a fluorocarbon solvent.

Dry-cleaning is generally done in industrial establishments and not at the domestic level. The items are brought to the cleaner's and identified with a tag that includes special instructions. Items are first inspected and treated at a spot board. Because a solvent is used, stains that are water-soluble and other hard-to-remove spots must be treated on the spot board. Customers who identify the stains for the dry cleaner make the cleaning task easier and ultimately improve their satisfaction with the cleaned product.

Additional treatment that many dry cleaners are equipped to do include replacing buttons, doing minor repairs to items, replacing sizing, water repellency and other finishes like permanent creases, moth proofing and cleaning fur and leather. Some dry cleaners also clean and sanitise feather pillows, blankets, quilts and carpets, and clean and press draperies.

17.4 Storage of Textile Products

The weather is not the same all the year round in our country; hence we have clothing to match all temperatures. The need for specific fabrics for specific weather conditions necessitates the storage of those not needed at the particular time. Whatever be the clothes, they need to be clean and dry before they are packed and stored away. Woolens should be brushed well and dry cleaned before they are stored, all stains should be removed and all tears mended. Pockets are to be turned inside out, trousers and sleeves turned up; they must be examined and freed from dust, grit, soot, etc. All clothing should be shaken, brushed, washed, ironed and folded. Pack loosely in cupboards or trunks. Too compact and tight packing may result in permanent creases sets at the folds of the fabrics. The shelves, boxes or closets chosen for storing should be clean, dry and insect free, away from dust and dirt. It is important that the packing should be in an atmosphere of very low humidity. Different fabrics require different care while storage, as each is susceptible to different micro organisms.

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11.5 Factors Affecting Fabric Care

The selection, use, and care of fabrics depend on many factors. Fibre content, yarn structure, fabric construction, colour application and finishing are the important factors considered for the product.

Each type of fabric has its own individual characteristics and hence needs specific care.

Fibres of which fabrics are made influence their care requirements, as shown in Table 2.

Table 2: Fibre properties that affect care and maintenance of fabrics

Fibre	Properties	Care requirements
Cotton & Linen	Strong fibres, stronger when wet, can withstand hard friction	
	Resistant to alkalis, can be easily washed with strong detergents	
	Can withstand high temperatures, if necessary can be boiled	
	Resistant to organic solvents and bleaches, acidic substances weaken the fibre	Acidic reagents used should be rinsed and neutralised
	Gets crushed easily, have to be ironed properly to remove the wrinkles	Needs to be damp for ironing or may scorch
	Fungus and mildew may attack them	Should be completely dry and stored in low humidity atmosphere
	If heavily starched, it can be attacked by silverfish	Need to be de-starched if stored over long periods
Wool	Weak fibre, and when it is wet weakens further	Should be handled gently during laundering
	Easily damaged by alkaline substances	Strong detergents or soaps should be avoided.
	Dry-cleaning solvents and stain removing agents have no deleterious effect.	Bleaches have to be used with care
	When wool is subjected to mechanical action like agitation during washing, they have a tendency to felt and shrink.	Washing in cold water with minimum handling is advised
	Knitted articles in wool can stretch out of shape while washing	An outline of the garment is made before washing and after washing the article is stretched back to the outline.

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	Has good resilience and does not wrinkle, may not require ironing	No direct ironing of the fabric, if needed it may be steam pressed
	Wool protein is particularly susceptible to damage by insects like clothes moths and carpet beetles	Repeated spraying with chemicals can prevent the damage during storage; naphthalene balls are effective for prevention of insect infestation
Silk	Strong fiber but it is weaker when it is wet; careful handling is required in washing of silk	Only gentle friction should be used while washing
	Damaged by strong alkalis, organic acids are used in the finishing	Mild detergents should be used for washing
	Dry cleaning solvents and spot removing agents do not damage silk	Bleaches have to be used with care
	Does not stretch or shrink on washing, has medium resilience due to which it wrinkles during use	Needs to be ironed
	Scorches easily if ironed at high temperature using dry heat	It should be thoroughly damp and ironed at low temperature
	Perspiration also damages the fabric	Need to be dry-cleaned and aired properly before storage.
	Silk gets weakened if exposed for long time to sunlight	Should not be dried in sun
	Resists attack by mildew and bacteria but are eaten by carpet beetles	Should not be stored if soiled
Rayon	Strength of most of the rayons is relatively low and further decreased when the fibers are wet	Require careful handling in laundering
	Chemically identical to cotton, but may be damaged by strong alkalis	It is safer to use mild soaps and detergents
	It is resistant to dry-cleaning solvents and stain removing agents	
	Rayon shrinks on washing	Care has to be taken while laundering
	Fabrics made of rayon tend to wrinkle and stretch easily as their elastic recovery and resilience are low.	However, it is easy to iron
	Mildew and silverfish are harmful to rayon, they are subject to harm by the rot producing bacteria	Should be stored in absolutely clean and dry condition and atmosphere.

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Nylon	Very good strength, retains much of its strength when wet	It requires no special care
	Is not affected by alkalis but acids may destroy the fiber	Should be rinsed well if acidic reagents are used
	Dry cleaning solvents, stain removing agents, detergents and bleaches can be used safely.	
	Can absorb dirt from other soiled articles	Should be washed separately
	Does not absorb water and therefore dries up quickly	
	Sunlight is destructive to nylon and causes a marked loss of strength after extended exposure.	Not recommended for window curtains or draperies
	Nylon is highly resistant to attack by most insects and microorganisms	
Polyester	No loss of strength when polyester is wet; can be easily washed	
	Good elastic recovery and resilience	Does not require hot ironing
	Develops small balls in its surface, which cannot be removed.	
	Moisture regain of polyester is very low, i.e., it does not absorb water easily.	Accounts for discomfort during hot climates
	If oil drips or drops on this fabric, it refuses to part with it.	Oily stains need to be handled carefully
	It is resistant to microorganisms and insects	
Acrylic	Strength is similar to cotton	Can be washed easily without any special care
	Has high elongation with good elastic recovery, so it does not get wrinkled easily	
	Moisture regain of acrylic is low and the fabrics dry quickly	
	It has good resistance to most alkalis and acids and most of the dry-cleaning solvents do not damage the fiber.	
	The fibers have excellent resistance to sunlight, all types of soaps, synthetic detergents and bleaches. It is not affected by moths	
	It catches fire readily and unlike other synthetic fibres continues to melt and burn	Care to be taken; can prove hazardous for children

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Yarn structure

Yarn structure (twist or type of yarn) may affect maintenance. For example yarns with high twist would shrink or novelty and complex yarns may catch or snag or get abraded. Blended yarns would mean that both fibre contents would have to be taken care of. You cannot use very hot water when polyester is blended with cotton since it would shrink, however it would not wrinkle much and therefore easier to iron.

Fabric construction

Fabric construction is closely related to maintenance. Simple closely woven fabrics are easy to maintain. Fancy weaves — satin, pile, or those with long floats may snag during washing. Knitted fabrics stretch out of shape and may thus require re-blocking. Sheer fabrics, laces and nets as also felts and non-wovens have to be handled carefully.

Colour and finishes

Colour is an important aspect of care. Dyed and printed fabrics may lose colour during cleaning and may stain other materials. The colour of the fabric may be tested before use and proper care needs to be taken in its use.

Many of the finishing treatments alter the behaviour of the fabrics, which may improve or cause problems. Some of the finishes may require renewal after every wash.

Thus, we can conclude that fibre content, yarn structure, fabric construction, colour application and finishing are the important factors considered for all fabric products. They combine to determine the appearance, comfort, durability and maintenance requirements. The importance of appearance, comfort, durability and maintenance are relative. It becomes our responsibility to evaluate the qualities of a fabric in terms of its ultimate end-use and then make the decisions concerning its use and care.

11.6 CARE LABEL

The care label is a permanent label or tag containing regular care information and instructions that are attached or affixed in such a manner that it will not separate from the product and will remain legible during the useful life of the garment.

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Washing Instructions on care-labels	
Washing Instructions	**Meaning**
89^0 For 29^0 C	Use cold water or set temperature of machines at cold
90^0-110^0 For 32^0-43^0 C	Use warm water or set temperature of machine at warm
150^0 For 60^0 C	Use hot water or set temperature of machine at hot
WASH CYCLE	
Delicate cycle	Time of agitation is reduced and speed of agitation is slow
Wash separately	Wash like colours together
Wash inside out	Reverse the garment before washing
Warm rinse	Use warm water for rinsing
Cold rinse	Use cold water for rinsing
Do not spin	Do not put in a spinner
Do not wring	Do not twist the garment
Hand wash	Wash by hand, kneading and squeezing method
Machine wash	Can put in machine for washing
DRYING	
Tumble dry	Can dry in a front loading machine (the clothes spin clockwise)
Drip dry	Dry for short while without wringing the water (used for synthetics)
Line dry	Hang on a drying line
Dry flat	Dry on a flat surface (used for woolens)
Dry in shade	Do not dry in sun (for coloured clothes)
PRESSING AND IRONING	
	Set temperature of iron at 210^0 C (hot)
	Set temperature of iron at 160^0 C (moderate)
	Set temperature of iron at 120^0 C (low)
	Do not iron
BLEACH	Clorine bleach
	Do not bleach
DRY CLEANING	
	Use all solvents
	To be dry cleaned with only white spirit or choroethylene
	Special care has to be taken while dry-cleaning as they are sensitive to dry-clean
	Use white spirit only
	Do not dry-clean

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In one of the last chapters that follow this, we once again refer to the significance of communication – just as you read about this on the care labels. The next chapter tells us of the various reasons why communications are received differently by different people.

Key Terms

Mending, Laundry, Stain Removal, Water, Soaps and Detergents, Dry-cleaning, Friction, Suction, Kneading and squeezing, Blues and Starches, Care label

Review Questions

1. What are the different aspects of care and maintenance of fabrics?
2. Define the term 'stain'. What are the different types of stains and what techniques can be used for removing them?
3. Write the steps in removing unknown stains from fabrics.
4. What is dirt? How do water, soaps and detergents combine to remove dirt from fabrics?
5. How does finishing after washing improve the brightness and textural characteristics of fabrics?
6. What is dry-cleaning? What are the types of fabrics where dry-cleaning is recommended?

Practical 17

Care and Maintenance of Fabrics

Theme: Colour fastness of fabrics
Task: Analysis of colour fastness to washing

Conduct of the practical: This type of knowledge will help the consumer make a wise choice for the care to be taken while washing coloured fabrics.

Conduct of the practical

- Take four samples each of coloured fabric and white cotton fabric measuring 2" x 4".
- Join coloured samples with white samples to produce (4" X 4") four samples (ABCD)
- Keep (A) as control sample and treat the samples B C D with already prepared 0.5% soap solution in warm water (40o C), rub gently.
- After five minutes rinse and dry.

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- Repeat the process for samples C and D. Wash, rinse and dry.
- Repeat the process with sample D and record the observation.

Observations

Sample	Change in colour of test samples	Staining of white cloth attached
A	Control Sample	-
B		
C		
D		

Make a group of 4-5 students and compare the observations of other fabrics also.

Practical 18

Care and Maintenance of Fabrics

Theme: Study of labels on fabrics and apparel
Task: Analyse the information given on the fabric and apparel labels

Purpose of the practical: The appearance, care, and servicability of garments and other products made of fabrics is a concern for consumers. This information is provided to consumers through labels or hand-tags. The fabric or yardage material has information stamped on one end or on selvage at regular intervals. These labels aid the consumer in identifying their products' properties and in caring for them in an appropriate manner so as to retain their claimed characteristics for a reasonable period of time.

Conduct of the practical: Collect five samples each of labels of readymade garment and 'stampings' on yardage.

- Analyse garment labels with respect to clarity, fibre content, size and care instructions regarding washing, ironing, storage, etc.
- Analyse stampings with respect to fibre content, yarn and fabric description, and finishes applied.

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